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A TEXT BOOK

OF

Materia Medica, Pharmacology,

AND SPECIAL THERAPEUTICS,

WITH MANY NEW REMEDIES, OF LATE INTRODUCTION.

Designed as a Text Book for the Student, and as a Ready Reference for the Practitioner. A Compend of Materia Medica, Written with Especial Reference to the More Direct or Positive Action of Medicines, and the Introduction of New Ones,

By I. J. M. GOSS, A.M., M.D., Marietta, Ga.,

Former Professor of Materia Medica, now Professor of the Practice of Medicine in the College of Eclectic Medicine and Surgery, Atlanta, Ga.; Member of the Eclectic Medical Society of the State of Georgia, and a Member of the National Eclectic Medical Association.

Second Edition. Revised by the Author.

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DEDICATION.

TO THE SCIENTIFIC, LIBERAL-MINDED PHYSICIANS OF THE UNITED STATES,

WHO ARE LABORING TO ATTAIN TO GREATER CERTAINTY

IN THE HEALING ART, AND THUS PROLONG

HUMAN LIFE, AND MITIGATE THE

SUFFERINGS THEREOF,

IS THIS WORK RESPECTFULLY DEDICATED BY THE AUTHOR.



PREFACE TO SECOND EDITION.

AUTHORS usually make some apology for writing books. All the apology the author has to offer for this second, revised edition of "Materia Medica, Pharmacology, and Special Therapeutics" is, that there have been so many remedies recently discovered and tested that a revised and enlarged edition is essentially necessary. He has discussed the physiological as well as the therapeutic action of the most essential remedies.

Medical science is fast advancing, and the shackles that have hitherto very much retarded that advancement are gradually and slowly being loosened, and ere long, "pathys" and "isms" will no longer clog the wheels of advancement. The physiological action of drugs, until recently, has not been much studied, and even now too little attention is paid to it.

The favor shown the first edition of this work by many very able physicians, has greatly encouraged the author to revise it, and bring it down to the present time. His aim has been to put forth, in small compass, a work, which will embrace the essential therapeutic truths of the healing art, and, as in the former edition, to avoid speculative and hypothetical theories in long detail. A short essay upon pharmacy has been added, as every physician who is occupying a country stand, should know how to prepare most of his remedies. The work is intended to be a reliable guide amidst the forest of experimental medicine. There will be found much originality, derived directly from forty-five years extensive practice, both private and clinical.

The plan of grouping remedies together according to physiological and therapeutic action, has still been retained in this edition. Some unofficinal preparations and crude drugs have been noticed, and their therapeutic action fully given, as far as known. The botanical peculiarities of many of the indigenous remedies are given, so that those who are in localities where the plants grow, may gather them, and tincture them in their fresh state, which is often essential to their purity. Many of our best text-books have been carefully consulted: the author especially acknowledges his indebtedness to Samuel O. L. Potter, Robert Farquharson, H. C. Wood, T. Lauder Brunton, Roberts Bartholow, Sidney Ringer, and many others.

THE AUTHOR.

MARIETTA, GEORGIA, 1889.

PREFACE TO FIRST EDITION.

THE only apology the author has to offer for presenting this little Compend, is, that it presents the leading truths of the science upon which it treats, in a concise form, and gives also the experience of the author, with that of many of the best therapeutists of the world. Designed as it is, as a text-book for students, yet it will serve to refresh the memory of the physician. The leading facts and principles usually embraced in larger works on the subject, and those usually taught in medical schools, are treated of in a concise form, unencumbered with needless hypothetical speculations. The design of this work is to give the more direct action of the remedies treated of, rather than to amplify in the field of supposition. For the therapeutic action of medicines, I acknowledge my indebtedness to Headland's work on the Action of Medicines, Ringer, Brunton, and also to other leading works upon Therapeutics and Materia Medica. Special notice is given to new and indigenous remedies, and the proper mode of preparing them, so as to have them of uniform strength. The dose, as named, is often larger than is required in ordinary practice.

Many new articles have been introduced, and the results of limited trials of them stated. While I have carefully considered the opinions of others, I have taken the privilege to dissent from some of them, when such opinions did not accord with actual experience of a long life's practice. I do not think it arrogant in me to claim the right to dissent from the opinions of those younger than myself; and I hope that those who are older will not consider it invidious in me to claim the right of private opinion, founded, as it is, upon very extensive

observation and experiment for thirty-five years in active practice.

I have given my opinion upon the use of mercurials, and although I am now almost daily tortured with a ruined constitution from the use of mercury in my early life, yet I ask the profession to examine the reasons for dissenting with many therapeutists upon this remedy, and not to think that I condemn any remedy from a captious or prejudiced motive, but from sad convictions from long observation and actual experience. The many startling exhibitions of the very baleful effects of mercurials have compelled me to caution the young practitioner against the use of a remedy of doubtful utility at best, but one of such apparent danger. If it is used at all, it should be combined with iodine, so as to lessen its tendency to ptyalism, and to convey it out of the system.

Mode of Action of Medicine, or Therapeutics.

In regard to the modus operandi of medicines, there are three distinct theories advocated. The first is Allopathy, which theory, as its name implies, supposes that a medicine produces a morbid impression, differing from the disease for which it was given. Thus opium is supposed to cure diseases of a neurose character, by producing a morbid impression upon the nervous system, opposite to the disease, and by that, removes the disease. Mercury is supposed to remove disease by its morbid impression upon the system, which morbid impression is supposed to counterbalance the diseased action, etc. The second system is called *Homocopathy*, and is founded upon the belief that a remedy that will cure a disease will produce the same disease, or a similar one, in a healthy system. And hence the well-known maxim, "Similia similibus curantur" like cures like. The third theory is called *Eclecticism*, and is founded upon neither of the above hypotheses exclusively, but upon quite opposite reasoning; which is, that when medicines are introduced into the system they are digested, and being absorbed and circulated through the system, they have, per se, an affinity for certain parts of the organization upon which they have a specific action, and are then eliminated. And as a proof, we may mention the action of astringents in diarrhea and hemorrhage, the action of diuretics in deficient action of the kidneys, and also the calmative effects of opium and other sedatives in excited states of the nervous system, and so on throughout the list of curative and palliative remedies. To remove disease, the remedy need not create another disease, but should act as a sedative or stimulant, and increase or diminish the nutrition of the part affected, according as the disease may be one that stimulates or depresses the organ or part that is implicated. And in those diseases where there are materies morbi floating in the blood and morbidly impressing the system, or parts of it, then such remedies should be given as are known to act as antidotes, viz.: such remedies as neutralize the poisons. Quinia acts in this way in fever; iodide of potassium and other alteratives have such an action in syphilis, scrofula, and some other diseases; and in continued fevers and inflammations, aconite, veratrum, and other sedatives, remove these diseases by their specific sedation upon the over-excited system. Hence Eclecticism discards the idea of the necessity of producing a disease to cure another disease, but urges the truth of there being a specific affinity in every known remedy, and this fact being understood and applied, the science of medicine will certainly attain a success hitherto unknown in the healing art.

Eclecticism in medicine signifies to choose or select from all other systems of medical practice whatever may be thought best adapted to the relief and cure of the sick. Eclectic physicians not only claim that they have the right to choose, but that they have chosen the best remedies from all other systems of medicine. Says a writer: "Now, if *Eclectics* have no rule of choice—no better or different light to guide them in their selection than their fellows, then they are guilty of an insuffer-

able egotism, and have no right to the name they bear." Other schools claim the same right of choice—claim that they, too, take the best from all sources, and that in this respect they are truly Eclectic. And many are thus liberal, both from the Allopathic and Homeopathic schools. Professor Edwin M. Hale, of the Homeopathic school, is one of those philanthropic spirits, who, looking beyond all party predilections, is laboring with a noble zeal to elevate the healing art to its high position in the scale of sciences. Professor Hughs Bennett, of the Allopathic school, who, while living, ignored the prejudices too often found in the ranks of the profession, always sought truth, and boldly rejected the errors of his confrères. And there are many noble men in the profession, as Potter, Ringer, Phillips and Brunton, who, far above petty factions and party cliques, are laboring to advance their noble profession to that high standard to which it is entitled, and to which it may be elevated by the investigating mind.

It is evident that the science of medicine cannot be confined to dogmatic rules—that is, we cannot lay down a law by which all our remedies shall be said to act. They do not all act alloyathically, as was once affirmed by the medical world. The old idea of forcibly expelling disease from a human body by medicines, as we would drive a thief from our barn or storehouse, is fast passing away. We are beginning to learn that disease is an impairment of vitality; that the causes of disease are depressing, and continually lower the various functions implicated in the morbid process, and that, consequently, all agencies employed to cure disease must act in one of two ways: to remove the depressing cause, and to increase the vital force, so as to increase resistance to morbid influences. The old idea that all diseases were phlogistic, and that all remedies should act antiphlogistically to cure disease, is now rejected by all good pathologists, and hence that class of remedies termed antiphlogistics is not now used on all occasions, as it has been in the past. Bleeding and the use of antimonials are rejected

by almost all physicians, and the use of mercurials is much more limited than formerly. Emetics and violent cathartics are not much resorted to now, for the indiscriminate use of these remedies has been found to impair the power of resistance to disease. Our remedies should not retard the vital efforts, but act in harmony with nature's efforts to heal—toning up all the functions.

Scientific physicians now are in search of specific medicines. Whilst I do not believe that we will ever get a specific remedy for every disease, yet I believe we will, ere long, get specific remedies for pathological conditions. Such has been the improvement in this direction for the past few years that we already have a long list of remedial agents which are so positive in their action, when the diagnosis is correct, that they almost uniformly give the same results. For instance, aconite and veratrum in arterial excitement, belladonna in congestion of the brain, macrotis in arthritic inflammation, hamamelis in relaxation of the capillaries and of the mucous tissues, collinsonia in congestion of the rectum, cactus in angina pectoris and other diseases of the heart, viburnum opulus in painful menstruction, viburnum prunifolium (black haw) in threatened abortion, chiananthus in jaundice, silphium laciniatum in asthma, oil of erigeron in hæmorrhage, and many more of like certainty in action, by which the practitioner is enabled to meet certain well-defined pathological conditions. But in order to use remedies specifically we must have a knowledge of those pathological conditions calling for the remedy. I would recommend all who desire to succeed in their profession to study diagnosis thoroughly, so as to recognize the indications for the remedies in all diseases. And as a good guide in this direction, I would refer them to my work, entitled "Specific Art of Healing," which is one of the latest works on the subject.

"All medicines employed as remedial agents act either upon certain functions or structures, and that action, to be curative, must, in some way, antagonize or oppose disease." Therefore, if the action of a remedy is to antagonize disease, a proper selection of that antagonistic agent will depend upon a correct knowledge of the pathology of the disease to be cured, and the precise action of the remedy employed, whether it act allopathically or homoeopathically. We must know the peculiar departure from a healthy state before we can select the remedy to antagonize or oppose it; hence the necessity of a knowledge of anatomy, physiology and pathology. We must know the various functions and organs in health, and the various lesions or departures from a healthy standard. Then we must know the direct action of our agents to counteract any functional or organic lesion that may exist. In disease, there is excessive action, defective action, or perversion of action in a part or parts of the organization. The precise pathological condition being thus determined, the treatment is at once suggested; and the modus operandi of medicines being well understood, the application of remedy to disease is not so difficult nor so uncertain as has been hitherto taught and believed.

There have been, in all ages, two systems or schools of medical treatment: the empirical and the rational system. The first is founded on simple induction. By mere accident or trial, it is ascertained that a certain remedy is of use in the treatment of a certain disorder; it is then regarded as the remedy in that disorder; and on such data this empirical system is based. But the rational system is based upon the more accurate knowledge of the symptoms of disease, and the more positive action of the remedies with which to combat disease. When we acquire complete knowledge of symptoms, and an accurate and definite idea of the action of medicines, we shall then be able to alleviate human suffering. We are already beginning to solve that great problem. Diagnosis, nosology, and therapeutics are making rapid strides; and it is to be hoped that we shall soon know what we have to cure, and the proper remedies demanded to accomplish that end. But it is to be regretted, that while all the other sciences composing the medical profession are progressing, that of therapeutics is making but slow advances. This is to be regretted indeed.

Practical therapeutics must be separated from scientific The first is empirical, as understood by many. therapeutics. The latter has for its foundation, truth and science. It is generally conceded that medicines, with few exceptions, to act on the system, must obtain entry into the fluids of the body by absorption. Now, in order that they may do so, it is necessary that they be in solution, or in such a state as to be soluble in the fluids of the stomach. The medicine, having entered into the blood, permeates the entire mass of the circulation, so as to reach the part on which it tends to act, by its affinity for that particular part. Some medicines act in the blood, and are called hæmatics, or blood medicines. They are curative of such diseases as depend on a fault in that fluid. They are chiefly used in chronic and constitutional diseases. There is another class of medicines that acts upon the nervous system, exciting, depressing, or otherwise altering its tone; these are used principally in acute diseases. There is a third class that acts upon muscular fiber, causing it to contract. Thus, astringents act upon the involuntary muscular fiber of the coats of small bloodvessels, and the ducts of glands. Hence they are useful to arrest hemorrhage and mucous discharges. There is a fourth class also, that acts on the secretions which are formed from the blood by the glands of the various parts. By the aid of this class we may eliminate morbid materials from the blood through the glands. Some remedies set up catalysis in the system; these are called alteratives, because of the change they produce.

We have said that particular medicines have specific tendencies toward special tissues, or particular organs, over which they exert a peculiar and special influence. Hence, when we wish to impress certain organs or tissues, we must select such medicines as have a special affinity for the part or parts we desire to affect. There can be no doubt that some medicines, such as iodine, bromine, and iron, tend to affect the blood and the blood-making organs, as the liver and spleen, but have no effect upon other organs. Some medicines, again, have a direct tendency to the nervous system, and some to special parts of the nervous system; thus opium acts on the brain, aconite upon the sensory nerves, digitalis on the organic nerves of the heart, and stramonium on those of the lungs. Some medicines tend directly to act on organs that preside over secretion; and of this class, certain ones select particular glands, as eupatorium purpureum the kidneys; saffron and other diaphoretics, the glands of the skin; podophyllin, jalap and senna, the glands of the bowels. These special affinities are well demonstrated, and cannot be denied, and the list could be greatly extended. We have said that hæmatics act in the blood. They are a very positive class of remedies, and act with certainty, when indicated. Some diseases originate in a want of some constituents of the blood, which deficiency causes an aberration of the vital function. Thus, in anæmia, there is deficiency of the hæmatosin of the blood corpuscles. In rheumatic fever, and some other disorders, an excess of acid prevails, probably from a want of alkali to neutralize it as fast as it forms. In inflammatory fever there is an excessive oxidation of the proteanaceous compounds, from a failure in the supply of the principles which are the proper food for the oxygen. In urinary deposits there is a want of those elements which retain them in solution. In typhoid fever, and sometimes other fevers, there is often an excess of basic material. and a deficiency of acid in the blood. In scurvy, there is a deficiency of the salts of potash in the blood. These diseases are cured by such remedies as supply the deficient material to the blood, or cause it to be generated there. Such remedies are restoratives. But the other class of hæmatics cannot remain in the blood, but must pass out. These are useful in that class of diseases that depend directly on a virus in the

blood, as syphilis, scrofula, etc. This class is termed catalytics, because they combine with and convey out of the blood materies morbi. Iodine, gold, phytolacca and corydalis are of this class and there are many other remedies in this class.

List and Dose of Normal Liquids.

Acouitum napellus (aconite)	2 m.
American hellebore (veratrum viride)	2 m.
Belladonna leaves or root	4 m.
Cannabis indica	8 m.
Cinchona, calisaya bark (or red)	60 m.
Coca leaves	
Colchicum root or seed	15 m.
Conium seed	15 m.
Ergot, as an hæmostatic	5 m.
" " parturient	60 m.
Foxglove (digitalis)	4 m.
Gelsemium	20 m.
Henbane (hyoscyamus). 4 to	10 m.
Ipecacuanha	30 m.
" anti-emetic and expectorant	1 m.
Mandrake	30 m.
" as a cholagogue	5 m.
Nux vomica	
Rhubarb	20 m.
as an astringent tome 5 to	5 m.
Stramonium leaves or seed	4 m.
Terebene	20 m.
as an expectorant	5 m.
Terpin hydrate (a solid)	9 grs.
Thalline (an antiseptic, active)	8 grs.
Urethane (a valuable hypnotic)10 to	20 grs.

Having spoken of the mode of action of medicines, I now propose to speak of the leading articles of Materia Medica. And for the convenience of the student, and in accordance with custom, I shall attempt to arrange individual articles into classes, as far as I consistently can.

Arterial sedatives act on certain parts of the nervous system, depressing the nervous force of the part; hence they are directly opposite in action to stimulants. But each article has a distinct and different action. Some of them possess a neu-

rotic power by which they have control over acute inflammations and zymotic fevers. Some of them, as ipecacuanha, aconite, nitre and veratrum, are eliminative: for, in passing out of the body through the glands of the skin, they become diaphoretic. This is the action of nitre and ipecacuanha, and some others, when given in small doses, so as not to act upon the nervous system to depress it. Ipecacuanha increases expectoration as well as diaphoresis. Digitalis, too, acts upon the nervous system, and being conveyed out of the body through the kidneys, acts as a diuretic. But we are directly concerned with the neurotic action of this class of medicines. They influence, more or less, the functions of circulation, respiration and digestion, by their influence over the par-vagum, or pneumogastric nerve. The action of these medicines is to derange nervous force in some cases, and to simply subdue it in other instances. These actions, being nervous actions, are transient, and hence to keep them up, it requires repetition of the medicine. These medicines, says Headland, "act upon the vagus nerve differently, and in variable proportions. Thus hydrocyanic acid produces convulsions, when given to healthy persons in large doses: this is by deranging the reflex spinal functions; but in convulsive affections, when the same functions are disordered, the same remedy may do good by subduing their excited condition. On similar grounds, tartar emetic injected into the veins, may produce pneumonia, and ipecacuanha, introduced as dust into the lungs, causes bronchitis or asthma; yet ipecacuanha is a remedy in bronchitis."

From such toxic effects of medicines upon well persons, the Homœopathists have derived their law of cure, to wit: "Similia Similibus Curantur." But will this do to guide us in the administration of medicines to the sick? Although the function of a nerve in health may be so deranged as to cause inflammation of the parts deriving their innervation from that part of the nervous system, yet is this the same action that cures the disease? When the mucous membrane of the bronchial tubes

or the lungs is inflamed, these medicines, by their depressing action upon the heart, thereby lessening the irritability of the parts, will cure the disease. These are both sedative actions; that upon the healthy subject is an action of derangement, but that upon the diseased one is by depressing the action of an irritated or diseased organ. As I before stated, these medicines affect the vagus in different proportions. Ipecacuanha, in small and repeated doses, acts upon the respiratory organs. It allays the tightness of the chest and diminishes cough, and increases expectoration. But in large doses, it produces nausea and then vomiting. If veratrum is given in large doses, it also produces vomiting, with great depression of the heart's action, and cold perspiration. But this violent action is to be avoided. Ipecacuanha and some other articles of this class, by nauseating the stomach, will depress the heart and thereby lessen fever or inflammation, but should not be continued too long, as such action lessens nutrition and produces too much debility

Digitalis may be given in doses large enough to produce nausea and vomiting, but it will control the circulation without this excessive use of it. In very small doses, where the vagus is deranged, and the heart thereby functionally affected, it will increase the number of beats per minute; and so will aconite. Digitalis is very useful in those cases of dropsy which result from an obstruction to the cardiac circulation. This is apparently from the fact that it relieves the congestion of the vascular system, which is the cause of the effusion of the serum. It also acts as a diuretic, and thereby unloads the vessels by carrying off the excess of water from the blood through the kidneys. Veratrum viride acts promptly upon the heart, by its direct depression of the vagus nerve. But these powerful arterial sedatives should be given carefully, as they are capable of producing death by syncope, when given in too large quantities. Headland gives an instance in which aconite was used in large doses, and produced death by syncope. Post-mortem examination revealed the fact that the influence was so direct upon the

functions of the par-vagus nerve that the lungs were found shrunken and bloodless, the mucous membrane of the stomach pale, and the cavities of the heart filled with blood. Evidently, then, the cause of death was paralytic syncope—a complete loss of power of the heart. This effect of aconite again shows the difference between the toxic effects and the medical impressions of this class of medicines upon the heart. In small doses, aconite has the reverse effect upon the heart, especially where there is already a depressed condition of that organ. As experiment has shown, aconite is the proper remedy for morbid depression of the heart. This I have recently tested in a great many cases.

THE AUTHOR.

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Signs and Abbreviations.

R., Recipe, take.

A. aa., Ana, of each.

Lb., or Lib., Libra, a pound; Lib., Llb., libra, pounds.

5, Uncia, an ounce; uncia, ounces.

J. Drachma, a drachm; drachmæ, drachms.

), Scrupulum, a scruple; scrupula, scruples.

O., Octarius, a pint; octarii, pints.

f₃, Fluiduncia, a fluid ounce; fluiduncia, fluid ounces.

f., Fluidrachma, a fluid drachm; fluidrachma, fluid drachms.

M., Minimum, a minim; minima, minims.

Ad. 2 vic., Ad duas vices, at two takings.

Ad lib., Ad libitum, at pleasure.

Add., Adde, addatur, let be added.

Altern. hor, Alternis horis, every other hour.

Aq. destil., Aqua destillata, distilled water.

Aq. ferv., Aqua fervens, hot water.

Aq. fluvial, Aqua fluviatis, river water.

Aq. font., Aqua fontana, spring water.

Aq. pluv., Aqua pluvialis, rain water.

Bis ind., Bis in die, twice a day.

Bull., Bulliat let it boil; Bulliant, let them boil.

Cap., Capiat, capiandum, let the patient take it.

Chart., Chartula, a small paper; chartula, small papers.

Cochleatin, by spoonfuls.

Cochl. mag., Cochleare magnum, a tablespoonful.

Cochl. med., Cochleare medium, a dessertspoonful.

Cochl. parv., Cochleare parvum, a teaspoonful.

Col., Cola, strain; coletur, let it be strained.

Collyr., Collyrium, an eye water.

Comp., Compositus, compound.

Cong., Congius, a gallon; congii, gallons.

C. M. S., Cras mane sumendus, to be taken next morning.

C. N., Cras nocte, to-morrow night.

Decoc., Decoctum, a decoction.

De d. in d., De die in diem, from day to day.

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Dieb. altern., Diebus alternis, every other day.

Dil., Dilue, dilute; dilutus, diluted.

Dim., Dimidius, one-half.

Div., Divide, divide.

D., Dosis, a dose.

Elec., Electuarium, an electuary.

Enem., Enema, a clyster; enemata, clysters.

Exhib., Exhibeatur, let it be administered.

F. H., Fiat haustus, let a draught be made.

Fil., Filtra, filter.

F., Fiat, fiant, let there be made.

Garg., Gargarysma, a gargle.

Gr., Granum, grain; grana, grains.

Gtt., Gutta, a drop; guttæ, drops.

Guttat., Guttatim, by drops.

Haust., Haustus, a draught.

Ind., In dies, daily.

Inf., Infunde, pour in, infuse.

Infus., Infusion, an infusion.

Inj., Injiciatur, let it be injected.

Jul., Julepus or jnlepum, a julep.

M., Misce, mix.

Man., Mane, in the morning.

Mist., Mistura, a mixture.

Mic. pan., Mica panis, a crumb of bread.

No., Numero, in number.

Omn. hor., Omni hora, every hour.

Omn. bid., Omni biduo, every two days.

Omn. man., Omni mane, every morning.

Omn. nocte, Omni nocte, every night.

Omn. quadr. hor., Omni quadrante hor α , every quarter of an hour.

Ph., pharmacopæia.

Procul., Proculum, a cup.

P. R. N., Pro re nata, as symptoms may call for.

Pulv., Pvlvis, a powder.

Q. P., Quantum placeat, as much as may please.

Q. S., Quantum sufficit, sufficient quantity.

Quor., Quorum, of which.

Redig. in pulv., Redigatur in pulverem, reduced to powder.

Repet., Repetatur, repetantur, let it, or them, be repeated.

S., Signa, write.

S. A., Secundem artem, according to art.

Semih., Semihora, half-hour, or half an hour.

Sign., Signatura, label.

Ss., Semissis, half.

Sum., Sume, take; or Sumendus, let it be taken.

Tabel., Tabella, a lozenge.

Troch., Trochiscus, a lozenge.

Trit., Tritura, triturate.

iss., Sesqui, one and a half.

Abs. feb., Absente febre, in the absence of fever.

B. A. Balneum arenæ, a sand bath.

Bib., Bibe, drink.

Bol., Bolus, a large pill.

B. V., Balneum vaporis, a vapor-bath.

Dig., Digeratur, let it be digested.

F. Pil., Fiat Pilula, make into a pill.

Feb. dur.. Febre durante, the fever continuing.

P. Æ., Partes æquales, equal parts.

Sem., Semen, seed.

Sp., Spiritus, spirits; sp. vini, spirits of wine.

Syr., Syrupus, syrup.



INTRODUCTION.

BY Materia Medica is generally understood a knowledge of the agents employed in the healing art—that is, their physical appearances, their habitat, and the means of distinguishing their purity, or adulteration.

By Pharmacy is understood the methods of preparing drugs

for administration to the sick.

Pharmacology includes the mode of action of drugs upon the system in general, and upon various parts. This last is one of the most important subdivisions of this branch.

Therapeutics is a knowledge of the uses of medicines in disease. It includes *empirical* and *rational therapeutics*. By *empirical therapeutics* is understood the mere hap-hazard use of drugs, or the use of drugs with but little knowledge of their action. If found successful, these drugs are again used in cases that are, or that seem to be, similar or identical in symptoms. The use of drugs upon mere nomenclature is empirical also. The *rational therapeutic* use of medicines is based upon well-defined pathological indications for the remedies, and upon the real pharmacological action of the drugs.

Preventive Medicine or Prophylaxis is also now essential of the healing art. Our knowledge of the life-history of microbes, and their morbid action in causing disease, renders it now possible to prevent disease in many instances. This part

of medical science is comparatively recent.

Pharmacy.

As Pharmacy is essential to the country physician, it will not be out of place to give a special notice of some of its opera-

tions. It is essential to the success of the practitioner that his medicines should be pure, and of uniform strength, so that he may know the dose of each article he uses. Certain isolated constituents are separated, in the form of alkaloids, resins, oleo-resins, etc., from the crude preparations. Many of these preparations are good representatives of certain individual actions of the drug from which they are separated, but they do not always represent the entire therapeutic value of the crude drug. Quinia represents the anti-periodic or anti-malarial property of Peruvian bark, but this is not all its therapeutic action. This is the case with many drugs.

It is a question with the physician now: What preparation of a drug is best? Many pharmacists are putting up fluid extracts, made by various processes, some made out of old dead materials, many ruined by heat, and all of varied strength. Other pharmacists make tinctures, all of the green roots, barks or leaves, and think that they have thereby produced the most potent and uniform preparations. There are many drugs, however, that cannot be made strong with green preparations—cimicifuga racemosa, for instance—because they contain resins, oils, oleo-resins, etc., and because the sap or water of the undried preparation so dilutes the alcohol that it makes a feeble tincture; this necessitates that such drugs be dried. On the other hand, there are many preparations, like gelsemium and phytolacca, that are almost or quite worthless when dry.

Drugs should be prepared from pure materials gathered at the proper season, and made of uniform strength. All tinctures should be made of good materials, with the proper menstruum, and then assayed. This applies to all other fluid preparations; they then, being normal liquids, of uniform strength, can be given without risk, and with more certainty as to final results. Homeopathic pharmacy directs the mother tincture to be prepared by cutting up the drug, crushing finely, pressing out the constituents of the plants, roots, leaves or blooms, and then adding an equal weight of alcohol. This is set aside for a

week, and then filtered; the filtrate is the mother tincture. This mother tincture is about ten times as strong as the best tinctures found in the market, which have been made in the old way out of dried preparations alone, or as those which we have to prepare from European imported plants, barks, roots, leaves and blooms, unless we assay the fluid preparations, and re-tincture until we get the standard strength. But when we have fresh American drugs (green where required) crushed, if we then add double the weight of the drug to alcohol, and let it remain two weeks and then press out the tincture; this represents a sixth part of the crude plant, or one sixth the strength of the juice of the plant, or one third of the mother tincture, and may be used as such. The dose must always correspond to the strength of the preparation.

The resins, resinoids, alkaloids, etc., are best triturated, 1 gr. to 9 grs. of sugar of milk; or take of the resin, resinoid or alkaloid, 10 parts, and of sugar of milk 90 parts, and triturate in a mortar thoroughly. This is what is known as the first decimal trituration. One part of this first decimal trituration to 9 parts of sugar of milk, and well triturated, forms the second decimal trituration, 2 dec., and so on as high as is desired. There are a few preparations, such as strychnia, atropia, and other like active poisons, which require trituration as high as the second or even the third dec., especially when they are to be given to children. When these preparations are thus triturated, the dose is much more easily arrived at than when crude drugs are used.

Of fluid preparations, none are so uniform in strength as the assayed normal liquids. The fluid extracts necessarily vary in strength, according to the strength of the drug from which they are made. Scientific medication is of course impossible where the remedial agent varies in strength. The assayed normal liquids are therefore the only absolutely reliable fluid preparations now made, as they contain a fixed, definite quantity of the remedial constituents of the drug. We may make

good tinctures, from carefully selected fresh drugs, especially our indigenous drugs, by crushing them, adding just enough of the proper menstruum to cover them, and then steeping two weeks, percolating, etc.

Menstruums or Solvents.

Natural Solvents are such as do not alter the chemical constitution of the substances which they dissolve. The most important ones used in pharmacy are alcohol, diluted alcohol, water, glycerine, sulphuric ether, benzine, benzol, carbon-bisulphide, and chloroform. Diluted alcohol is intermediate between water and alcohol in solvent power. Glycerine dissolves many more substances than water, but fails to dissolve some substances soluble in alcohol. Ether and chloroform, which dissolve many constituents of plants, owing to their cost, are not much used in pharmacy.

Water and alcohol are most frequently used to dissolve the remedial substances of drugs. Alcohol is used to extract the medicinal properties from plants, barks, seeds, leaves, or roots, resins and resinoids, oleo-resins, most alkaloids, essential or volatile oils, glucosides, neutral-bitter principles, tannic acid, astringents and vegetable acids. Gums, starches, vegetable albumen, pectin, and some other constituents, are not soluble in alcohol. Most of the fixed oils are insoluble in alcohol or water; castor oil is an exception to this rule, as it is freely soluble in alcohol. Alcohol is an almost universal solvent of the remedial constituents of drugs. The senna family is an exception. The most active constituents of ergot, which are soluble in water, do not dissolve freely in strong alcohol. Since alcohol does not dissolve many of the non-medical principles of plants, except the chlorophylle, it is used as an almost universal menstruum. Besides this, alcohol preserves the remedial constituents of the drugs unchanged, if kept in a cool place, and from air and light.

As water dissolves only a part of the medical principles, and

dissolves all the non-medical principles, and as these include the nitrogenous elements, which greatly tend to promote retrograde changes of solutions, it is evident that water is suitable only for such medicines as are to be used at once. Diluted acetic acid is used to form the *aceta*. This acid is used to convert an alkaloid principle into a soluble salt. Many fluid extracts (so called) should be rejected, as they are made by boiling, which evaporates the volatile oils, and very much injures resins, oleo-resins and resinoids.

Polypharmacy Dangerous.

I very frequently see physicians' prescriptions composed of a dozen or more remedies, some of them chemically incompati-There are quite a number of chemicals ble with the others. that are not only incompatible with certain others, but are even dangerous, as some of them form poisonous, others explosive compounds. I frequently notice prescriptions in which chlorate of potassium is prescribed with other chemical salts. Sodium hypophosphite with potassium chlorate is explosive when water is added. Tannic acid and glycerine with potassium chlorate explodes upon the addition of water. Pulvis catechu added to potassium chlorate is explosive, and dangerous. Pulvis nut galls, mixed with potassium chlorate, explodes. The tincture of chloride of iron, glycerine and potassium chloride (often prescribed in diplitheria), if warmed, will explode. Potassium permanganate added to alcohol and water will explode. Nitric acid, muriatic acid and tineture of nux vomica, mixed, explodes after two hours. Muriate of morphia added to the oxide of silver is explosive, if it be then mixed quickly with extract of gentian, but mixed slowly, it is more safe. A mixture of soap liniment, iodine and spirits of camphor is explosive. The biborate of sodium, sodium bicarbonate, glycerine and water, if corked, are liable to explode.

Ŗ	Potassium chlorategrs. 40
	Syrup iodide of iron34
	Simple syrup3 4
	Chloroformgtts. 20
	Water to make

makes a brown liquid, which becomes deeper and deeper in color until it assumes the color of iodine; it then becomes a deadly poison. Albumen and gelatin, and substances containing them, are incompatible with tannic acid, or anything containing it. Iodide of potassium mixed with chlorate of potassium, is poisonous.2 Hydrocyanic acid or potassium cyanide mixed with metallic salts, such as hydrates, carbonates, sub-nitrates or subchlorides, as the carbonate or the nitrate of bismuth, or with calomel, are poisonous. Any of the powerful oxidizers mixed with the readily oxidizable substances, as potassium chlorate, or permanganate of potassium with tannin, sugar, sulphur, the sulphides, vegetable powders, glycerine, alcoholic or ethereal tinctures, result in explosions. Chromic acid mixed with sugar, glycerine, or other alcohol producing agents, will explode. Potassium chlorate mixed with oils and ethers, explodes. Potassium permanganate mixed with sulphur and the sulphides, explodes. Nitric acid mixed with phosphorus will explode, and is dangerous. Nitro-hydrochloric acid mixed with dry organic substances, may explode. Fluid extract of uva ursi mixed with certain samples of spirits of nitre, or chromic acid with glycerine, permanganate of potassium with glycerine, nitric acid with glycerine, nitrate of silver with creosote, the oxide of silver in pill with extract of gentian, potassium chlorate with glycerine and tincture of chloride of iron, and chloride of lime triturated with sulphur in a mortar have produced explosions. Tineture of iodine with ammonia forms the iodide of nitrogen, which becomes highly explosive, especially if triturated, when mixed with water.

¹ This used to be prescribed. .

²This mixture has poisoned many.

Therapeutic Incompatibles.

Therapeutic incompatibility takes place when two or more agents are given together which oppose each other in their therapeutic action—as, for example, when belladonna is given with opium or physostigma. Aconite physiologically antagonizes atropine, digitalin, and strychnine. Alcohol antagonizes strychnine. Ammonium chloride antagonizes chloral-hydrate. Atropine antagonizes aconite, bromal-hydrate, chloral-hydrate, hydrocyanic acid, jaborandi, muscarine, morphine, physostigmine, phytolacca, pilocarpine, and quinine. Atropine will prevent death from most of the above drugs, but they do not prevent death from over-doses of atropine. Barium antagonizes sodium sulphate, and potassium salts. Bromal-hydrate antagonizes atropine. Brucine antagonizes chloral-hydrate. Calabarine antagonizes chloral-hydrate. Carbolic acid antagonizes chloral-hydrate. Chloral-hydrate antagonizes ammonium chloride, atropine, brucine, calabarine, carbolic acid, codeine, physostigmine, picrotoxine, strychnine and thebaine. Chloroform antagonizes amyl nitrite. Cocaine antagonizes morphine. Codeine antagonizes chloral-hydrate. Gelsemium antagonizes opium and atropine. Morphine antagonizes atropine, caffeine, chloroform, cocaine, daturine, hyoscyamine, nicotine, and physostigmine. Muscarine antagonizes atropine. Opium antagonizes veratrum viride, atropine, and gelsemium, but opium is only rendered less narcotic by gelsemium. Physostigma antagonizes chloral, morphia, and atropine, to a certain extent. Saponin antagonizes digitalin. Strychnine antagonizes alcohol, chloral, hyoscyamine, hydrocyanic acid, nicotine and nitrite of amyl. Thebaine antagonizes chloral-hydrate.

The following named remedies are incompatible with so many others that it is always best to give them, in their proper solution, at a separate time from all other medicines or combinations: Hydrocyanic acid diluted, nitro-hydrochloric acid

diluted, sulphuric acid diluted, iodine and the iodides, syrup of the iodide of iron, potassium permanganate, potassium acetate, potassium bromide, tincture of guaiac, morphine acetate or hydrochlorate, quinia sulphate, liquor calcis, liquor potassæ, liquor potassii arsenitis, liquor ferri nitratis, tincture of chloride of iron, zinc acetate, citrate of iron and quinine, and free chlorine in solution, tannic and gallic acids, and all the articles containing them. Tannic acid should not be given with the per-salts of iron, but may be given with the proto-salts of iron. As a general rule, tonics do not act well with iron, except columbo, which does not contain tannic or gallic acid. However, as all our remedies have a direct action of their own, we should, as a rule, give but one at a time; when we give two remedies, they should be alternated.

PART I.

CHAPTER I.

Arterial Sedatives.

Aconitum Napellus-Monk's-Hood, Wolf's-Bane.

THIS plant has a simple, straight, erect stem or stems, about five feet high. The leaves are alternate, petioled, dark-green above, paler beneath. The flowers are large, deep-blue or purple, and hairy; the fruit is a capsule. The root is napiform, perennial, but small. It is a native of Europe, growing in woods, on hills and plains, and is often cultivated as an ornamental plant. It flowers in May and June. All parts of the plant contain a powerfully poisonous principle; but the root is the most active for medical purposes. Aconitia (or aconitin) is the active principle of the plant.

Physiological Effects.—The physiological effects of aconite on the nervous system are as follows: In lethal doses of aconite, in most cases, the intellectual faculties are unaffected, but there is stupor.

Aconite paralyzes both the reflex and the motor activity of the spinal cord, and produces almost total loss of power of the muscular system. After some time the respiratory centre also becomes paralyzed, and death then ensues from suffocation.

Although this paralysis of the voluntary muscles is supposed to be primarily spinal in its origin, yet, it is believed

that the motor nerves are secondarily affected, the paralyzing effect beginning at their peripheral extremities. The inhibitory cardiac ganglia are first stimulated, and then depressed, and a sedative effect is produced on the sensory nerves. As a result of this, the first indication of the action of this drug, when taken by the mouth, is a tingling sensation, soon followed by numbness and anæsthesia of the lips and throat. Its influence on the vaso-motor nerves produces a diaphoretic effect. Aconite is a true cardiac sedative, slowing the action of the heart at first from inhibitory stimulation, but soon causing an increase in the rapidity of the pulse beats, with feebleness and great irregularity, which soon end in death by arrest of the heart's action in diastole. At the same time, the arterial pressure is very greatly reduced before death.

The respiratory movement is rendered slower, and finally irregular. In animals, death results from suffocation. In the human family, the temperature falls very greatly before death.

Aconite does not influence the digestive organs, but it increases the salivary secretion. It also increases the secretion of urine, most powerfully increases the action of the perspiratory apparatus of the skin, and in some cases brings out an irritable vesicular eruption. Thus, it is apparent that this very powerful drug must be used with the utmost caution and care. Children tolerate it better in proportion than adults, and it is a most valuable remedy in febrile and inflammatory affections of children, if used before structural changes have taken place.

Medical Effects.—Aconite was introduced to the medical profession by Storck, as a remedy in chronic rheumatism, and various other inflammatory diseases. He found it to act as a diuretic, diaphoretic, and narcotic. But later observation has proved it under certain circumstances to be an arterial sedative of a peculiar character. As conceded, aconite acts upon the sympathetic system of nerves; when that part of the nervous system is laboring under the depressing effects of zymotic poi-

ACONITE. 3

sons, it seems to stimulate the nerves of the heart and increase its ability to propel the blood along the arteries. It may appear, at first view, that the above statement is paradoxical, yet such is the result of actual experience. Aconite, like most if not all other remedies, has a primary and a secondary action — a toxic and a medical action. In small doses, where the heart is depressed, it energizes and equalizes the circulation; but in large doses, in a normal state of the heart, it controls its action in proportion to the amount given. Hence, if given in over-doses, it, like veratrum and digitalis, will even produce paresis of the heart and death thereby. I have often used it in typhoid and typhus fevers, and in typhoid pneumonia and other like diseases connected with an asthenic condition, and have found it to produce very favorable effects in such conditions.

When the pulse is small, frequent and rather feeble, showing enfeeblement of the heart, aconite in small doses, say from half a drop to one drop of the saturated tincture, every half hour or hour, will lessen the number of beats of the heart per minute, and increase its volume. It possesses, also, the power of lessening inflammation in a very remarkable degree, and it does this when given in very small doses. those diseases originating from zymosis there is always great depression of the heart, with irritability, producing frequency of the pulse, and more or less increase of heat; but the pulse is generally small, attended frequently with deficient capillary circulation from want of tonicity of the heart and the capillary vessels, together with dilation of the vessels. In such conditions aconite acts promptly. In the sthenic form of fevers and inflammations, attended with a full, quick, strong pulse, veratrum will act much better than aconite. In tonsillitis, applied locally and given internally, aconite acts very promptly. In dysentery, attended with asthenia, it often cuts short the disease without any other remedy, except an occasional purge to unload the upper bowels. In all inflammations and fevers, where the pulse is found soft, wiry and easily compressed, or with a frequent and irregular pulse, evincing feebleness of the heart with irritability, aconite will act very promptly. In cases of fever or inflammation, with congestion of the nervecenters, attended with coma or typhomania, aconite, alternated with belladonna, will give prompt relief to the congested nerve-centers. Locally applied, it is anæsthetic, and is a valuable remedy for hyperæsthesia, as in neuralgia, irritability of the bladder, and other like cases of hyperæsthesia. It is also a good remedy for that most troublesome affection, prurigo, for which disease it may be applied three times a day, or oftener if demanded.

The tincture of aconite may be made by adding eight ounces of the root to one pint of alcohol. Dose, from three-fourths of a drop to two drops every two hours.

Aconitin—General Uses.—Aconitin is the alkaloid, resinoid and neutral principle found in the Aconitum Napellus, and in some respects represents the crude article when properly manufactured. It may be used wherever the aconite is indicated. The dose is from $\frac{1}{25}$ to $\frac{1}{50}$ of a grain. In many conditions of the system, as already pointed out, it is preferable to any other article of its class, acting by a peculiar anæsthetic effect upon the nervous system. Like aconite, it seems to be capable of paralyzing the entire nervous system when given in large doses, or when continued beyond the time needed to accomplish the desired sedative influence; for it has been known to produce great depression and tingling in the nerves in doses of one-sixteenth of a grain. As an anæsthetic it is a very positive remedy in some cases of cephalalgia, dependent upon hyperæsthesia, in which affection it should be given in small and repeated doses, alternated with belladonna. In neuralgia, particularly facial neuralgia, it generally gives very prompt relief, especially when alternated or combined with belladonna. I have recently had several cases of this painful affection that did not yield to any treatment except the

above combination. In hyperesthesia of the bladder, called ardor urini, aconitin in small doses, alternated or combined with a mild diuretic, will give speedy relief. In this affection the one-sixteenth or twentieth of a grain is sufficient, repeated every two or three hours. Like the aconite, it acts best in small doses, continued until its effects are manifest upon the nervous system. We must always recollect that if we produce the toxic effects of this remedy, we do not get its medical effects; then, too, we are compelled to desist from its further administration, as it would be dangerous. In spermatorrhea, attended with nocturnal emissions, aconitin, combined with lupulin, is an efficient remedy, and will seldom fail to relieve. In chordee from gonorrhea, aconitin combined with gelsemium will give prompt relief.

It seldom fails to give relief in those cases of irritable uterus, causing dysmenorrhœa, when combined with senecin, viburnum, and scutellarin. In irritability of the vagina and bladder, in females of nervous habit, it is prompt. In prurigo, aconitin, applied in the form of an ointment, will allay the intense itching and lessen the inflammation. In all cases of disease attended with hyperæsthesia of the nervous system, it may be prescribed with confidence.

Although it allays irritability of the nervous system, yet it does not, in due doses, interfere with the motor system of nerves, as its specific action seems to be upon the gray nerve matter of the sensitive nerves, and not upon the motor system. In very large doses, however, it controls the action of the heart to a limited extent, and does this by a peculiar anæsthetic effect upon the irritable condition of the nervous system in fever. One of its highest recommendations is, that it so modifies the sensibility of diseased tissues as to relieve pain without materially interfering with the functions of the various emunctories of the body. In that extended list of diseases, called inflammatory, as pneumonia, pleuritis, bronchitis, trachitis and acute rheumatism, as well as continued forms of fever, aconitin is one of our

most reliable remedies; and in the more grave forms of these diseases, it may be combined with veratrin in doses to suit the patient and the activity of the disease; but when combined the dose must be small, and its effects watched carefully. In remittent fever, where the remission is imperfect, aconitin may be combined with gelsemium, and given until the action of the heart is controlled and the remission is produced, and then followed by antiperiodics.

Aconitin, like all concentrated remedies, is best triturated with lactin, say one grain of aconitin and sixty of lactin; then the dose will be from three to five grains of the trituration, as often as required. An ointment may be made by adding ten grains of aconitin to an ounce of lard, and applied three times a day in neuralgia, etc. The fluid extract is very reliable, in my idea, preferable to the aconitin, and may be given in doses from half a drop to one drop, or, in some cases, as high as two drops. The tincture may be made out of the fluid extract by adding one ounce to fourteen ounces of wine or brandy; the dose then will be from half a drop to two drops, and repeated every three or four hours, or every hour in cases of high febrile excitement. The effects should always be closely watched. It is the remedy in asthenia, but not in sthenia. (For full action, see Aconite.)

Veratrum Viride-American Hellebore.

The American Hellebore has a stem from three to five feet high, roundish, solid, pubescent, striated, closely invested with the sheathing hairs of the leaves. The root is the part used, which is perennial, thick, fleshy, its upper portion tunicated, its lower half solid, and sending forth a multitude of large, whitish roots. The leaves are sheathing, the lower ones are large, oval, acuminate, pubescent, strongly ribbed and plaited, the upper ones generally narrow. Flowers in compound racemes, terminal. The peduncles are downy. The bracts are rather boat-shaped, acuminate, and tomentose. Perianth com-

We prefer the Aconitia, trit. 1 to 60, in half to one-grain doses.—F.

posed of six green, oval, acute segments, the alternate ones the longest, all terminating at the base in a sort of claw. Stamens six in number, with recurved filaments, and roundish, two-lobed anthers. Ovaries three, cohering, with acute, recurved styles. Fruit consisting of three capsules, united together, separating at the top, and dehiseing on their inner side. Seeds flat, winged, and imbricated. This plant is indigenous to the United States, usually growing in damp meadows, and is hence called Swamp Hellebore and Indian Poke. It flowers from May to July. In its fresh state it has a disagreeable odor, which disappears on drying. The taste at first is rather sweetish, afterwards bitter, followed by an acrid, pungent sensation, which persists for some time in the mouth. It contains veratria, gallic acid, extractive, etc. There are other species of this plant in this country, as the veratrum parviflorum and veratrum angustifolium. Hence the botanic peculiarities should be studied.

Physiological Effects.—Veratrum viride, in large doses, greatly depresses the spine and brain, producing muscular prostration.

Veratrum viride powerfully depresses the heart and the vascular system. It lowers pulse rate and arterial tension, which effects are due both to a direct action of the drug on the heart-muscle, and to a stimulation of the cardiac inhibitory nerves. It lowers the temperature, but does not materially affect the respiratory movement.

It produces nausea and vomiting, and sometimes purging. If stimulants are not employed at this point, fatal collapse will ensue. It contains jervia and veratroidia, and its effects on the stomach are attributable to the latter articles.

Medical Properties.—Veratrum viride is one of the most direct sedatives that we have, but given in large doses, as it usually is given, it is depressing, and even dangerous in many cases. But given in small doses, frequently repeated, it is an arterial sedative, very valuable in sthenic forms of fever and

inflammations. I use it generally in active pneumonia, bronchitis, pleuritis, and in some other inflammations. doses it is not only depressing, but, by paralyzing the cardiac nerves, it tends to congestion. In large doses it irritates the stomach, so that it cannot be tolerated. In all cases where sthenia exists, where the disease is attended with frequency and freedom of the circulation, veratrum will be the remedy. Veratrum not only controls fever and inflammations by internal administration, but when locally applied, in the early stages, not unfrequently cuts short superficial inflammations. It is a good remedy in inflammatory rheumatism. also a good remedy in erysipelas and phlegmonous inflammation of the cellular tissues. It is a good application to felons, diseases of the bones, tonsillitis, etc. It is also alterative, it increases waste and excretions, and stimulates digestion and nutrition.

The dose is one to two drops every two or three hours. In large doses veratrum frequently produces faintness, somnolency, coma, dimness of sight, dilatation of the pupils, vertigo, headache, impaired muscular action, general numbness, slow pulse and infrequent respiration, hiccough, a pale, cold skin covered with clammy sweat, pain in the præcordia, profuse, watery diarrhea. These are the toxic effects, and if the agent be continued in large doses, it will produce death by paralysis of the heart. It is, primarily, a powerful cerebro-spinal and cardiac depressant. In over-doses it will cause paresis of the whole circulatory apparatus, and its ultimate primary effect is to cause an equally profound paralysis of the cerebro-spinal and reflex-motor nerve-centers. Its action may be thus briefly stated: It acts on the heart in a manner the reverse of digitalis. It is a direct depressant upon the cardiac ganglia and heart muscles. The heart, after death from veratrum, is found relaxed and full of coagulated blood. It acts on the spinal cord reversely to strychnia. It primarily paralyzes the spinal cord and the reflex-motor nerve-centers.

The experiments of Prof. H. C. Wood, and others, show that the rapidity of the pulse and arterial pressure were at first lessened, but after a time the pulse still remained very slow, the heart-beats acquired four times their normal force, and the arterial pressure became normal; then the pulse rate was suddenly quintupled, the cardiac beats losing much of their ordinary vigor, the arterial pressure rising, etc. "This," says Prof. Wood, "is due to asphyxia, produced by the spinal action of the drug." But it seems that it is from the secondary action of the drug producing pressure upon the arteries, and then congestion from that pressure. Dr. Wood contends that the weakening of the heart's action is due to the stimulation of the parvagum at its origin. A small dose of veratrum seems to excite the pneumogastrics, and a large one paralyzes them; this is the case with many of our remedies. They have a primary and a secondary action, generally the reverse of each other. The law of "Similia similibus curantur" prevails in the action of many drugs. It would seem that neither congestion nor inflammation can occur during the period of lowered blood pressure, but venous stasis or passive engorgement may and doubtless does occur in many cases. Quinine acts on the brain and spinal cord in a reverse order from veratrum, viz: The primary effects of quinine (its toxic effects) are like the secondary effects of veratrum, and it has been noticed by some physicians that the two remedies did not combine well. Infinitesimal doses of quinine do not have any curative action of an active character over the congestion or the inflammatory stage, nor will over-doses of veratrum; many physicians have been disappointed in its use, because they have given it in over-doses. The dose of a remedy has much to do with its curative action. We must restudy the materia medica, and especially in regard to dose.

It has been observed, that in animals poisoned by veratrum (in large doses) the lungs were intensely congested, a great many of the capillary vessels were ruptured, and the lungs so

hepatized that they would sink in water. Such congestion or inflammation could not occur during the period of decrease of arterial pressure (primary action), but during the secondary action of the drug. Hence veratrum should never be given in the latter stages of pneumonia, that is, in the stage of gray or red hepatization and softening, as it will prolong that stage, if not lead to fatal results. In this stage small doses of digitalis, alternated with quinine, would be much more appropriate. Aconite, in small doses, would also act well in this condition, especially where there is depression of the cardiac nerves, indicated by a quick, feeble and small pulse. Veratrum is one of our most potent remedies in sthenic diseases, but must be given cautiously. Veratrum has recently been found successful in puerperal and other convulsions of a congestive character.

Dr. Nothnagel states, that the convulsive center is located in the floor of the fourth ventricle of the brain, in the pons varolii. Hence the good effects of veratrum in convulsions, as it, in large doses, lessens convulsive action, when of a congestive character, as it is in the puerperal state. Upon the same principle it cures strychnia poisoning, by counteracting the effects of that drug upon the convulsive center; for it is a wellknown fact that strychnia acts directly upon the convulsive center, and in a powerful manner when given in over-doses. The primary action of veratrum seems to be just opposite to that of strychnia. And, in proof of the fact, there are many cases of puerperal convulsions reported as cured by large doses of veratrum. In such cases, where the pulse is full and hard, veratrum may be relied on as a positive remedy. Also in that fearful disease, cerebro-spinal meningitis, veratrum is a valuable remedy, especially in the earlier stages.

The usual dose of the saturated tincture is one or two drops every half hour or hour, according to the severity of the disease. Whenever the pulse begins to respond to its action, the dose should be lessened and the intervals prolonged. Thus

given, it is a safe and positive remedy in inflammatory diseases. In children, from one-fourth to half a drop, according to age. I use it in all inflammations attended with a hard, full, quick, bounding pulse. In many cases of acute rheumatism, of a high grade of inflammation, I commence the treatment with this drug. In puerperal fever (peritonitis) I depend on this article, and in the early stage I have frequently cut it short. I have recently been using it locally with good effect in inflammation of the external ears, the jaws, testes, etc. I apply a lotion, say one drachm of tincture or fluid extract to one ounce of glycerine or water, to the parts inflamed, with lint or cotton. Thus applied it lessens the capillary stasis of the parts, and aids much in overcoming the disease. I use it also in pruritus with prompt effect. The fluid extract may be used in doses of one-fourth to half a drop. I use the saturated tincture from the fresh roots.

Veratrin.—Veratrin is the active principle of veratrum viride. This is one of our most certain and powerful arterial sedatives, and when given in over-doses, or continued too long, it will produce great prostration, profuse perspiration and emeto-catharsis, hiccough, great anxiety, burning in the stomach, feeble pulse, thirst, delirium, and, if not counteracted by stimulants, it will finally produce death. These are its toxic effects, and should always be guarded against, with the utmost care. In medical doses, say from $\frac{1}{100}$ to $\frac{1}{130}$ of a grain, every one, two or three hours, as the case may require, it acts as a very prompt arterial sedative, diaphoretic, diuretic and expectorant. These properties render it one of the most appropriate remedies in pulmonary diseases of an active, inflammatory character, as pneumonia, pleuritis, bronchitis, etc. It is also a very positive remedy in acute rheumatism, controlling the heart, and acting on the skin and kidneys. It is an appropriate remedy in cases attended with high febrile or inflammatory excitement, unless there is gastric or intestinal irritation to contra-indicate it. In all inflammations of serous tissues,

where there is a strong, full, resisting pulse, hot and dry skin, there is no remedy that equals veratrin in its benign influence upon the system. In such conditions $\frac{1}{50}$ of a grain should be given every two hours, until the pulse begins to fall, then the intervals prolonged to three or four hours between the doses; when the system is completely relaxed, and the skin soft and moist, half the quantity will keep up this influence as long as it may be required.

In that state of typhus and typhoid fevers attended with high febrile excitement, veratrin, aconitin and gelsemin may be advantageously combined, given in doses sufficient to impress the system, and continued at such intervals as may be requisite to control the pulse. In bilious fever, as it is usually called, the remissions are frequently very imperfectly marked. In such cases the veratrin and gelsemin may be given so as to reduce the circulation and produce a remission, in which to administer antiperiodics. In pneumonia and pleuritis, veratrin combined with asclepin and sanguinarin, and given so as to control the action of the heart, will soon bring these diseases to a favorable termination. In puerperal fever I know of no remedy so prompt as veratrin in alleviating the symptoms, and bringing the disease to a speedy termination.

The great activity of this remedy demands caution and mature judgment in its administration. As the dose is small it should always be triturated 1 grain to 100 grains of lactin. The dose of the trituration is one to one and a half grains.

Gelsemium Sempervirens—Yellow Jessamine, Wild Woodbine.

Gelsemium is indigenous to the United States, and is found in rocky and sandy land, and often on the banks of streams. It is cultivated as an ornamental vine, on account of its beautiful and fragrant yellow blooms. It entwines around trees, or runs along fences, or on the ground. For its botanical character, the reader is referred to King's Dispensatory.

Physiological Action.—In large doses, gelsemium causes vertigo and double vision. In still larger doses, it produces a paralyzing effect on the spinal cord, and finally abolishes voluntary movement and produces numbness and staggering or incoördination. It also suspends reflex irritability, dilates the pupil, and, if a very large dose has been taken, the sensory columns of the cord are paralyzed, producing complete anæsthesia. The first nerve affected is the sixth at its termination, which causes paralysis of the external rectus; and still later the third is attacked. When applied to the eye, gelsemium dilates the pupil, but taken internally it contracts the pupil. Its effects are more rapid in passing off than are those of belladonna or atropia, and the diminution of accommodation for near objects is not so well marked, and passes off in ten or fifteen hours.

Upon the heart and circulation this drug acts directly. It greatly weakens the heart and arterial system. This effect is believed to be owing to its power of lessening the irritability of the excito-motor ganglia of the heart, and it lessens the arterial pressure by diminishing cardiac irritability and the tone of the vaso-motor nerves; but the heart continues to beat after respiration ceases.

The respirations become labored, shallow, and irregular, from diaphragmatic paralysis, and death ensues from asphyxia. The temperature falls, partly from perspiration which it induces.

It often produces nausea, and sometimes violent vomiting, lasting for several hours, the result of its action on the brain.

Medical Effects.—I use the tincture, made by covering the bark of the fresh root in alcohol, steeping for ten or twelve days, and then filtering. The dose varies from five to twenty drops.

This article has been variously represented, some attributing to it antiperiodic and some parturient properties, others considering it worthless. But it is as positive in action as any

remedy in the materia medica, when given pure, and as indicated below. Gelsemium exerts a very positive effect upon the brain and spinal center, and considerable influence over the sympathetic system of nerves. But it is contra-indicated where there is atony and a tendency to congestion, characterized by feeble circulation, dullness of the eyes and dilated pupils, pale, expressionless countenance. In such cases this remedy would be dangerous, in full or even moderate doses, producing death from syncope. It is indicated in those cases of malarious disease accompanied with irritation and determination to the brain, flushed face, bright eyes, restlessness and contraction of the pupils. In such cases it will be found to lessen the frequency of the pulse, and produce greater freedom of the circulation. In those cases of remittent and intermittent fever where the febrile stage is prolonged and very high, gelsemium will impress the heart and reduce the circulation, thereby procuring an intermission or remission, and preparing the system for antiperiodics. It is an antispasmodic, and, as such, is valuable in asthma, spasms of children. and in stricture of the urethra; also in chordee, and spasmodic affections generally, if not connected with congestion of the spine. Gelsemium has a special affinity for mucous membranes, and will do good service in gonorrhea, leucorrhea, bronchorrhea, and catarrh, with profuse discharge from the nose. Prof. Wm. Paine, of Philadelphia, prizes it very highly in cases of congestion and inflammation of the mucous membranes. I have used it very extensively in colitis or dysentery, and find that it directly impresses the mucous coat of the rectum, lessening the discharges, relieving the tormina and tenesmus, and aiding other remedies in the final cure of this disease.

Gelsemium has been regarded as a parturient, and the idea has originated from the fact that it is one of our best remedies in rigid os uteri. Whenever labor is retarded from a want of relaxation of the os uteri, then gelsemium becomes a parturient by overcoming this obstruction; and its prompt

relaxation of the rigid os uteri has given rise to the idea of its parturient action. I have been unable, however, to perceive any other parturient effect from it, though I have given it in a great many cases of labor. It is a good remedy in the early stage of catarrh, lessening the inflammation of the mucous surface by a specific tendency to act upon that tissue. The same specific action upon mucous tissues renders it a very valuable remedy in the inflammatory stage of gonorrhœa. In cases of nervous headache, unattended by congestion, it has acted promptly in many cases in which I have used it.

It should be made out of the green bark of the root, or out of the freshly-dried bark, for it soon loses its strength. I usually cover the fresh bark of the root with alcohol (76°), and steep ten or twelve days, then strain and filter. Of this tincture I give from five to twenty-five drops. From ten to fifteen drops is the ordinary dose, repeated every three hours.

Gelsemin is the active principle of the gelsemium sempervirens. It seems to fully possess the properties of the crude article from which it is manufactured, when made from the fresh bark of the root, and made scientifically; but, like many other articles, if not made from the fresh, crude article, and properly extracted, it is worthless. When chemically pure there is no remedy of more extended application than gelsemin. It has been much misrepresented, however, and this has been owing to the fact that its medical properties have been adjudged more from its toxic effects than from its therapeutic powers. When taken in over-doses, its toxic effects are very soon manifested upon the brain and nervous system; it produces vertigo, tremors and paralysis of the motor nerves. It does not much disturb the mental manifestations. One of the first evidences of its impressions upon the muscular system is a tendency of the eyelids to drop, followed by double vision or dimness of sight. This is regarded as the evidence of its full therapeutic effects, and the sign by which we are warned to discontinue the remedy until these impressions pass off.

will suspend and hold in check muscular irritability and nervous excitement more completely than any remedy hitherto known. It is very highly extolled in fevers, and is thought by some to be capable of cutting short the most aggravated types of fever in a few days. My experience is, that it will so control the circulation and nervous irritability as to speedily procure a remission in those cases of miasmatic fevers that do not readily remit; it seems also to exert a favorable impression over the irritable condition of the heart in continued fevers or local inflammations, as pneumonia, pleuritis, bronchitis, etc.

In convulsive affections it is of much value, by its relaxing effects upon the muscles, thus relieving the pain in many acute diseases. In flux, where there is high arterial excitement, attended with tormina and tenesmus, I use the gelsemin with the most prompt relief. I have used it with decided effect in tetanus; combined with lobelia it will relax the system and relieve that disease in a short time. In fact, I have not met with any remedy equal to it. In neuralgia, combined with quinine and the prussiate of iron, the gelsemin is a very prompt remedy. In dysmenorrhea the gelsemin, combined with belladonna, will be found to give prompt relief. It has a controlling influence over hyperemia of the mucous surfaces. In gonorrhea, and other inflammations, it aids materially in their cure. In all cases connected with hyperæsthesia of the nervous system, this is a speedy and safe remedy.

The dose is from one-eighth of a grain to one grain. One-fourth to half a grain is the usual dose, repeated every hour until it impresses the system.

Digitalis Purpurea—Foxglove, Finger-Flower.

Digitalis is a native of Europe, but is cultivated in the United States. (See Dispensatory.)

This is one of our prominent arterial sedatives, when properly prepared from the fresh or recently-dried leaves. I prepare my tincture by covering the leaves, freshly dried, with alcohol

(76°), or add eight ounces of the leaves to one pint of alcohol. The dose then will be from one to ten drops, and I have given it in larger doses as a diuretic in dropsy. It need not be repeated oftener than every two or three hours, as it impresses the system some time.

Physiological Effects.—In very large doses,—lethal doses, digitalis kills by tetanizing the muscles of the heart, causing irregular and feeble action, followed by arrest of the heart's action. The face grows pale, the pupils dilate, vomiting and diarrhea supervene, and death occurs from syncope. Stimulants are the best antidotes, while the patient should be kept in a horizontal posture, to prevent syncope. Aconite and atropia have been suggested as physiological antidotes, in moderate doses.

Digitalis does not seem directly to affect the brain, but, in very large doses, it diminishes the reflex action of the spinal cord. It stimulates some portions of the vaso-motor and pneumogastric nerves, even in moderate doses.

Digitalis, in moderate doses, exerts a tonic effect upon the heart, and thereby renders its beats slower and more forcible, and lengthens the period of systole. This effect is partly owing to the direct action of the drug upon the heart, and partly to stimulation of the cardiac inhibitory fibres of the vagus nerve, which hold in check the rapidity of pulsation produced by the sympathetic nerves. But if the remedy be long continued, exhaustion of the pneumogastric is very liable to follow this over-stimulation, and the heart, now being under the unrestrained influence of the vaso-motor nerve-supply, beats with rapidity, and with but feeble contractions. The tonic influence of digitalis is attended by a rise of arterial tension, from stimulation of the sympathetic.

Digitalis, in medical doses, resembles aconite in its action, but its toxic effects are exerted on the cerebro-spinal system of nerves; hence, in adynamic forms of disease, it produces too great exhaustion of the nerve-force. But its well-marked effects upon the sympathetic system, in medical doses, render it a valuable remedy in fevers and inflammations of an atonic type. In that condition of the system it will reduce the circulation and the temperature. In cases of heart disease, attended with feebleness of the heart, it will be found a good remedy. It influences the capillary circulation, and may be employed in hæmorrhages of an asthenic character. It acts, too, as a diuretic under these conditions, hence is valuable in dropsy. In atonic dropsy I use digitalis, combined with apocynum cannabinum, with very positive results. If the accumulations of serum be very great, I use hydragogue cathartics first, then give from fifteen to twenty drops each of the tinctures of digitalis and apocynum, every three hours. In small doses I have frequently given digitalis in palpitation from feebleness of the heart brought on by the excessive use of tobacco, or in cases of debility after acute diseases; and, in such cases, it seems to act as a cardiac tonic, evidently improving its nutrition. I am now treating a case of the above kind, following pneumonia, and it is regularly improving under the use of digitalis in very small doses. It acts also on the reproductive organs, and is of much service in spermatorrhoea, dependent on excessive venery. In such cases it acts as an antiaphrodisiac. The same property renders it also the remedy for nymphomania.

Digitalin is manufactured from the digitalis, and is said to be its full representative, but I have never used it, as I prefer the concentrated tincture. It may be used in doses of from $\frac{1}{16}$ to $\frac{1}{30}$ of a grain. It may be triturated, 1 grain to 100 grains of sugar of milk. Dose of this trituration, from six to ten grains, every three hours.

This medicine was much used in heart diseases before the discovery of aconite and veratrum, but, on account of its more dangerous effects, it is not so much used now as formerly. If given too long it is liable to produce great depression of the heart and to impair the energy of the nervous system, thereby producing too great exhaustion of the vital forces. Aconite

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and veratrum produce all the sedative effects of digitalin without so great exhaustion, and they are now used to supply its place as arterial sedatives. Digitalin, however, has a specific action upon the reproductive organs, and may be used as an antiaphrodisiac in spermatorrhæa. In nymphomania it may be used with marked benefit. It is used by some practitioners in incontinence of urine, and, it is said, with success. It may be used with good effect in epilepsy. In dropsy its diuretic effects are important, and for that purpose it may be combined with oil of juniper, nitre, eupurpurin, and chimaphyllin. It is a valuable remedy in dropsy when there is an asthenic condition of the system, as the sequelæ of scarlatina, and other like diseases. It is a good remedy in small-pox, etc.

The dose is one-fourth to one-sixteenth of a grain, twice a day.

Cactus Grandiflorus-Night-Blooming Cereus.

Cactus grandiflorus is indigenous to the United States, growing in the west and northwest.

The saturated tincture should be used, which is made by adding four ounces of the fresh bloom to one pint of alcohol. Dose from one to five drops, every one, two or three hours, according to the urgency of the symptoms.

The cactus is not now regarded as an arterial sedative, but is introduced here because it is often used in some heart and nervous affections. It has a direct action in certain morbid conditions of the heart. It influences the sympathetic nervous system, especially the cardiac plexus. In large doses it is represented to produce acceleration of the pulse, a feeling of constriction in the chest, headache, pain in the heart with palpitation, and a disposition to sadness, imagination of evil, vertigo, over-sensitiveness to sounds, with dimness of vision, and many other abnormal conditions of the nervous system. These are its toxic impressions.

In medical doses it does not seem to increase innervation,

but improves the nutrition of the heart. It has, however, a controlling influence upon the circulation of the brain, by its influence upon the cardiac nerves, and is of material service in that morbid condition of the brain giving rise to fear of impending danger. In functional diseases of the heart it gives prompt relief, and regularly continued, in small doses, finally effects a cure. In organic diseases of the heart it is not the remedy to depend upon, but may be given in connection with other remedies indicated in each distinct organic lesion. In valvular diseases of the heart it may be combined with collinsonia. In that state of nervous irritation, called nervousness, cactus exerts a very kindly influence. Like all new remedies it has been much overrated, but it has its place, and if prescribed according to its specific tendencies or affinities, will fill certain direct indications in disease. It is a specific in angina pectoris and neuralgia.

Strophanthus Hispidus.

Strophanthus hispidus acts on all striped muscular fibre. Its effects upon the heart are much more decided than those of digitalis, but its action on the blood-vessels is not so powerful, yet its diuretic effect is most marked. It is a cardiac tonic, strengthening the heart-muscle, even in typhoid fever with enfeebled first sound of the heart, and a tendency to cardiac failure. It thus will increase radial pulsations in cases of debility. In dropsy of the legs, from cardiac obstruction, it quickly reduces the swelling. In cardiac obstruction, it gives great assistance to the laboring heart. It is not a cardiac stimulant, but a cardiac tonic, and does not accumulate in the system. Use the tincture. Dose one to five drops.

Nicotiana Tobacum-Tobacco.

Physiological Effects.—In large doses, tobacco produces the most profound depression; nausea, vomiting, with giddiness and great weakness. If the amount taken has been large, to LOBELIA. 21

the above effects are added burning pain in the stomach (and this pain often occurs in chewing or smoking it), purging, free urination, sometimes delirium, feeble pulse, cramps in the limbs (upon the law of Similia similibus curantur), entire loss of muscular power, cold clammy sweats, and finally collapse, soon followed by death. These symptoms are quickly produced by small doses of nicotine, say from $\frac{1}{16}$ to $\frac{1}{32}$ of a grain. In those who are not in the habit of using tobacco, even the $\frac{1}{70}$ of a grain is dangerous. The antidotes are stimulants.

Tobacco (indigenous to America) is a powerful sedative, but is so active as such that it is not generally used for that purpose. As an antispasmodic it is used in extreme tetanus or colic after lobelia has failed. It is safer to use it in the form of a poultice, removing it as soon as the patient becomes relaxed, etc. In obstinate constipation I have used a poultice of tobacco infusion with prompt success. In colic of horses I use the infusion, one ounce of tobacco to one pint of water, by enema, and have saved the lives of a great many valuable animals with this most powerful relaxant.

Lobelia Inflata-Wild or Indian Tobacco.

Lobelia is indigenous to the United States, growing in fields, lanes and at the edges of woods, flowering in July, and continuing in bloom until fall. The leaves and capsules, with the seed, are used. It should be gathered about August and September, and dried in the shade.

Lobelia is a sedative to the heart, not so direct as veratrum, but if continued, in proper doses, it is a valuable remedy in acute inflammations, especially in pneumonia. It was a favorite remedy with Prof. L. D. Ford, of the Augusta (Georgia) Medical College, in 1843. It may be combined with veratrum in pneumonia, and will be quite an addition, as it relaxes the stricture of the thoracic muscles, relieving the dyspnœa, and aiding the veratrum to control the circulation; at the same time

it acts as an expectorant. But one of the most important uses of this article is its effect upon nutrition. This effect is the result of the direct influence of lobelia upon the sympathetic nervous system. It improves innervation, and thereby increases the activity of all the vegetative functions. This effect can only be procured by giving very small doses, say one or two drops, every two or three hours. As a relaxant, it is valuable in cases of rigid os uteri, and may be combined with gelsemium in full doses.

Lobelia is one of our most powerful emetics, but is rather harsh when used alone, and should be combined with ipecacuanha, equal parts of the powder. In asthma I have always depended upon lobelia in the immediate paroxysms, giving it at first in emetic doses, then in just sufficient doses to keep up relaxation. There is no remedy that has been more abused than this one, yet we should not abandon it on that ground. If used when indicated, it will fill an important place in the varied types and complications of diseases, as met with in the everyday practice of the physician. As an emetic, it may be given, when preferred to the combination with ipecac, in the form of the acetous emetic tincture of King's Dispensatory, and should be given in small and repeated doses, so as to admit of absorption and to procure emesis from its influence through the circulation, and not from the direct irritant effect upon the mucous coat of the stomach.

I make my own tincture, by adding eight ounces of the drug to one pint of alcohol (76°). The dose, as an emetic, will be a teaspoonful, every ten minutes, until it produces emesis. As a relaxant, it may be given in doses of ten to twenty drops, every hour, or in less quantity in many cases. As an expectorant, it may be given in doses of three to five drops in the syrup of sanguinaria, say ten drops of each, every two hours. As an antispasmodic, in doses of fifteen to twenty drops, until it causes vomiting.

Potassii Nitras-Nitrate of Potassium. Saltpetre-Nitre.

In large doses nitrate of potassium is a poison, but in medical doses it is an arterial sedative, diuretic and diaphoretic, and often proves laxative. I once used it a good deal in inflammatory rheumatism, but now use other articles in preference. I have used it with good effect in dropsy, but it has to be given in larger doses than I am willing to risk, to procure its diuretic effects. As an arterial sedative I seldom use it, as there are many others more efficient and less dangerous. The dose is from ten to thirty grains. The chief use I make of it is to saturate paper with a strong solution of it, and when dried, to burn in the room, for asthma. It gives great relief.

Sodii Nitras-Nitrate of Sodium.

This has not been much used as an arterial sedative, but, as a mild refrigerant, it may be used in fevers and in dysentery with marked effect. It may be given in doses of one or two drachms, every three or four hours. The Germans use it extensively in dysentery, and speak highly of its effects.

Antimonii et Potassii Tartras-Tartar Emetic.

Tartar emetic was used much as an arterial sedative, and some still use it; but its great tendency to produce gastroenteritis renders it too dangerous for common use.

CHAPTER II.

General Sedatives.

THESE are remedies which, passing into the blood by absorption, come in contact with the nerve-centers, and exert a depressing influence. Some are more powerful than others. They do not affect the intellectual part of the brain. They all have special tendencies or affinities for certain parts of the nervous system.

Acidum Hydrocyanicum—Hydrocyanic Acid—Prussic Acid.

Physiological Effects.—This article, and the cyanide of potassium, in large doses, produce death. Prussic acid applied to the skin produces some degree of anæsthesia. It has some effect upon the brain, causing stupor and giddiness. In a little larger doses, it affects the respiratory centre in the medulla, weakens respiration, paralyzes the motor nerves, causing great muscular feebleness. If a lethal dose is taken, the respiration becomes more and more feeble and irregular, until finally it ceases and death ensues. The sensory nerves are enfeebled in their conducting power. It has also a sedative effect upon the heart. It directly affects the blood, combining with the hæmoglobin of the red corpuscles, preventing them from fulfilling their mission in carrying oxygen to the various tissues of the body. It is soon eliminated unless a fatal dose has been taken.

This is a powerful sedative upon the reflex spinal system, which properly makes it a prompt antispasmodic, and has been used in spasmodic cough. In that spasmodic affection of the stomach, gastrodynia, it will be found to give relief.

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In tuberculosis of the lungs, in the early stage, where the cough is very frequent and spasmodic, from one-fourth to half a drop may be given every three or four hours, gradually increasing the dose to one drop. But it is a very dangerous remedy, and should be given with great caution. I have used it in some cases of very frequent cough, from irritation, and usually combine it with the cold infusion of the Prunus Virginiana (Wild Cherry), say four drops of the acid to eight ounces of infusion, sweeten, and give from one-half to one ounce, every three or four hours. It is going out of use.

Conium Maculatum-Hemlock-Poison Parsley.

Physiological Effects.—No effect is produced on the brain proper, as the intellectual faculties remain unimpaired until death. Pure conium has but little effect on the spinal cord, but methyl-conia, which is contained in it, causes first exaltation, and finally depression of the reflex functions of the cord. Conium acts directly on the nerves. It acts first on the third nerve, causing drooping of the eyelid, dilatation of the pupil, and impaired movement of the eyeball itself. The effects of the drug then spread to all the motor or efferent nerves. Enfeeblement of the limbs is felt, staggering, and finally total paralysis takes place. This influence is first confined to the terminal extremities of the nerves, but the sensory nerves are quite unaffected. The heart is not affected, but respiration is paralyzed, and death ensues therefrom.

This plant is a native of Europe, but is naturalized in the United States. It grows in meadows and in swamps.

The extract, *conia*, is used, but the essential or saturated tincture is officinal. This is a sedative to the spinal nervous system, and so powerful that, if given in too large doses, it produces paralysis. It likewise influences the sensory nerves to a less degree. Dr. Schroff found that conia produced giddiness, anæsthesia, dilatation of the pupils, diminution of the pulse, and finally paralysis. Pushed too far it will produce

convulsions, and finally death. It is fast going out of use. It is best and safest given in tincture, made with eight ounces to alcohol one pint; dose, fifteen to twenty drops, every two or three hours. It should be fresh.

Physostigma Venenosum-Calabar Bean.

Physiological Effects.—Calabar bean, applied to the eye, causes contraction of the pupil; hence, it is antagonistic to belladonna. It does not affect the brain, as the mind remains clear to the last. The extract has been given in much larger doses in tetanus than can be tolerated under other circumstances, but care is required, or fatal results will ensue. The eserine in calabar bean antagonizes strychnia; the other principle, which is calabarine, resembles strychnia in its action upon the cord. The spinal cord is directly affected by calabar bean or its full extract, its motor power is diminished, and finally paralysis follows, where the subject is fully under its influence. It abolishes all reflex activity, and even stimulants do not restore this reflex excitability in the slightest. In the first stage of the action of the calabar bean the motor nerves are not affected. but a secondary lessening of their conductivity takes place; and with the sympathetic system, a state of excitement is soon followed by secondary depression. The contraction of the iris is probably due to paralysis of the peripheral vaso-motor nerve fibres, and to the stimulation of the terminal filaments of the third pair of nerves; of this we are not certain.

After small doses of this drug, the action of the heart becomes slower and stronger, and the arterial tension is greatly increased; but when a lethal dose is taken, the cardiac pulsations soon become irregular and much feebler, and then cease. This may be from exhaustion of the peripheral cardiac filaments of the vagi.

The respiration becomes slow and irregular, and there is slight fall of the temperature. Calabar bean causes vomiting and painful contraction of the stomach, with increased peristalsis. It destroys life by paralyzing the respiratory centre, causing suffocation. In very large doses it proves more quickly fatal, by cardiac syncope.

Great caution is required in dealing with such a powerful drug. In tetanus, subcutaneous injections are more certain of action, using a solution of the extract in quantities from $\frac{1}{8}$ to $\frac{1}{6}$ grain, with a little soda added to neutralize its acidity. The alkaloid, eserine, is difficult to extract, and unstable. The sulphate is ten times the strength of the extract, but is soon decomposed.

Ŗ	Eserine sulphgr. $\frac{1}{2}$
	Glycerine
	Aqua \\ \frac{7}{5} 16
	M. Sig. Dose, one drachm every hour or two.

The calabar bean has been lately introduced into ophthalmic practice, on account of its very remarkable power of contracting the pupils of the eyes. According to Dr. Harley it has a sedative influence upon the system, but is not much used except in ophthalmic practice, to contract the pupils. Physostigmine, the alkaloid of the calabar bean, acts so powerfully upon the eye, that it will contract the pupil of a dead animal. (See Bulletin Gén. de Therapeutique, February, 1874.) The antidotes to calabar bean are atropia and nux vomica.

Brominium—Bromine.

Bromine is a liquid made from sea-water, of a dark-red color, having a strong, disagreeable odor. It is slightly soluble in water, more soluble in alcohol, and still more so in sulphuric ether.

Physiological Action.—The chemical action of bromine is very much like that of chlorine; it decomposes hydrogen compounds, forming bromhydric acid, and separating the elements associated with hydrogen. In consequence of this chemical action, it becomes a deodorant and antiseptic of considerable power. The vapor of pure bromine is very irritating to the

air-passages, and dangerous to inhale before it is mingled with the atmosphere. It combines with water and liberates ozone, which attacks the mucous membranes. If the vapor of pure bromine be inhaled long, it is liable to produce laryngitis, bronchitis, and pneumonia.

Locally applied in the liquid form, undiluted, it acts as a powerful, but rather painful escharotic. Taken into the stomach in its pure state, it acts as a corrosive poison, quickly producing gastritis, followed by collapse and death.

Therapeutic Action.—The vapor of bromine, sufficiently diluted, is a remedy in acute coryza and hay-asthma.

\mathbf{R}	Brominii																	32	SS	5
	Alcoholis	5					٠				 ٠		٠				٠	5	4	-
	M. Sig.	For	i	n]	ha	al	al	tie	01	n.										

A small quantity of the above solution may be placed in a wide-mouthed vial, which can be vaporized by the application of the hand. The vapor should be drawn into the nose, when the disease is confined to the nasal ducts, and into the lungs in advanced cases, after the disease has attacked the bronchi. The vapor thus diluted, liberates a sufficient amount of ozone, not so strong as to be irritating to mucous membranes and to do injury, but strong enough to destroy the pollen of the plants that produce hay-fever and asthma. This diluted vapor of ozone is also a good remedy in chronic catarrh.

As an escharotic, the bromine locally applied, is active in chancre, hospital gangrene, and carcinoma uteri. It may be applied with a glass rod.

Camphora Monobromata—Bromated Camphor.

Monobromated camphor, or bromated camphor, is a crystalline solid. This article possesses active physiological powers, but its therapeutic action is not fully developed, as yet. It has been used, to some extent, as a nerve-sedative, and antispasmodic, especially in children. The dose is five to six grains; adults eight to ten grains.

The Bromides.

Physiological Effects.—These preparations act upon the cerebrum, and spinal centre. They are depressant, somewhat alterative, hypnotic and antispasmodic. They are saline in taste, diffusible, but are slowly eliminated from the blood. They are decomposed in the blood, and are re-formed at the points of elimination, as in the fauces, bronchi, intestines, skin, and kidneys, and hence, are irritating to the mucous tissue. If continued too long, they are liable to produce gastric catarrh. They lessen somewhat the force of the heart beat, and reduce the number of the respirations. They diminish the calibre of the arterioles, and lower arterial tension. They lessen activity of the cerebral-cells, and thereby tend to sopor. They diminish sensibility of the peripheral nerves, causing anæsthesia of the skin and mucous membranes. They impair the sexual function, and motility.

Long continued, in large doses, they cause emaciation and pallor, and also lower bodily temperature. Most of them cause acne on the face and arms, fetid breath, dysphagia, defective coördination. They may also impair the mental faculties, producing melancholia, with suicidal tendency, and finally peripheral paralysis, gradually extending to the nerve centres. The acne and lowered sensibility indicates the approach of *Bromism*. This arises from anemia of the cord and brain.

Potassium Bromide is the most apt to produce bromism. It exercises the most paralyzant effect on the heart and muscles, but is the least hypnotic of the bromides. It affects the skin more than the other bromides, and contains the least bromine, 66 per cent. I consider it less valuable in epilepsy than the others.

Sodium Bromide is the least tonic, but the most hypnotic, and is the most powerful in its influence over the circulation. It contains 78 per cent. of bromine, and does not produce acne as readily as the potassium bromide, and is better in epilepsy.

Ammonium Bromide resembles the potassium salt in its action, but does not affect the heart, nor the muscles, as profoundly, and it is stimulating in debility.

Lithium Bromide contains the largest percentage of bromine, 92 per cent, and resembles the sodium salt in its action. The lithium salt has proven, with me, more satisfactory than any of the other bromides, in some cases of epilepsy. It is considered to be the best hypnotic among the bromides, but costs more.

Calcium Bromide is an active hypnotic, but otherwise, not so active as the other bromides.

Zinc Bromide, in large doses, is a violent irritant. It is supposed to combine the tonic effects of the zinc with the sedative effects of the bromides already named.

Ferrous Bromide is officinal only in the form of a syrup. It is supposed to combine the effects of iron with that of the bromides, but it has not proven to be very valuable as a chalybeate.

Antagonists and Incompatibles.—Such agents as stimulate the vaso-motor nerves, as digitalis, ergot, belladonna, etc., are incompatible with the bromides.

Potassii Bromidum-Bromide of Potassium.

Bromide of potassium is a sedative to certain parts of the nervous system, particularly the cerebellum. In satyriasis and spermatorrhœa, which is a state of hyperæsthesia of the nerves of the parts, generally produced by that sinful habit of masturbation, bromide of potassium, in twenty-grain doses, will generally control this morbid condition. In cases of epilepsy, when caused by irritation of the reproductive organs, this remedy will do good service. It should be given in small doses morning and noon, and in large doses at night. The brain should be kept under the direct influence of the remedy all the time, until the irritation is quieted completely. For

many purposes, however, I prefer the bromide of ammonium, next to be noticed.

Ammonii Bromidum-Bromide of Ammonium.

This article seems to exert a very kindly influence upon certain disorders of the nerve-centres. In that peculiarly irritable condition of the brain, originating from over-work, in which the patient cannot sleep, this is the remedy par excellence. And in that peculiar condition of the nervous system giving rise to asthma, I have found this a good remedy. It is a prompt remedy in epilepsy and convulsions of children. Dose, five to twenty grains.

Lithii Bromidum-Bromide of Lithium.

The bromide of lithium is preferred by many practitioners to the other bromides, because it does not cause eruptions upon the skin, and because its action is more speedy. A case is recorded by Dr. S. W. Mitchell, of a gentleman threatened with apoplexy, who had previously had an attack, and was hemiplegic. He was taken with numbness, vertigo, headache, and thickness of speech. One dose of thirty grains removed the symptoms in less than thirty minutes. The same writer records a case of epilepsy, in which a fit occurred every morning on rising, which was cured by ten grains, twice a day. When the other bromides have been tried and have failed, this often succeeds. Prof. Edwin M. Hale, in his work on new remedies, reports a case of brain-fog, after prolonged mental exertion, with flushed face, insomnia, and intense pain between the shoulders, which yielded to the bromide of lithium. I am now treating just such a case, only more grave, as there is great nervousness and vertigo in my case, and the patient is very rapidly improving under the bromide of lithium.

Camphoræ Bromidum-Bromide of Camphor.

Bromide of camphor is a combination of two medicines which seem to possess opposite effects, as the bromides pri-

marily cause cerebral anemia, while camphor causes cerebral congestion. Hence it would appear that a union of the two remedies would counteract each other. From reports of those who have used it, it appears that, when given in large doses, the camphor-effects predominate. It has been known to cause congestion of the brain in doses of from six to ten grains, and sometimes even to produce delirium. Prof. Hammond, of New York, has used it with success in moderate doses. Its action is that of camphor, somewhat modified by the bromine. It is valuable in cerebral congestion, given in small doses, so as to get the secondary and not the primary effects. It is also a good remedy in hysteria with nervous erethism. Dr. Hammond found it useful in several cases of convulsions of infants due to teething, given in doses of one grain every hour, rubbed up with a little mucilage of gum acacia. In doses of four grains he gave it to a hysterical young lady, with marked benefit, but increased it to ten grains, every hour, to cure the case. The headache due to mental excitement is frequently relieved by four grains, every hour or two. In a case of delirium tremens, in a large man of plethoric habit, after one hundred grains of bromide of sodium had failed to cause sleep, five grains of monobromide of camphor caused sleep in thirty minutes.

Sodii Bromidum-Bromide of Sodium.

Bromide of sodium is preferred to bromide of potassium, as its local effects upon the gastric mucous surface are not so acrid; and, having nearly the same taste of common salt, it may be mixed with the food, and thus given to children. Its effect upon the capillary circulation of the brain is like that of the other bromides. The dose is from five to twenty grains.

Quiniæ Bromidum-Bromide of Quinia.

Bromide of quinia has lately been introduced to the medical profession. Like the other preparations of the bark, it has power over the nervous system as an antiperiodic, but the bromine, in union with quinia, prevents undue congestion of the head, and consequently may be given in cases where the quinine would be contra-indicated. In the latter stages of typhoid diseases, where a mild tonic is needed, this is an appropriate remedy. The single dose is from five to ten grains, or two grains every hour.

Ferri Bromidum-Bromide of Iron.

This salt is highly recommended for chorea. Dr. Potter says that it is one of the most efficient remedies in the treatment of this disease. He says: "Twenty years ago my youngest daughter had chorea, which home trouble stimulated me to a thorough review of the subject, and a more careful observation of the best method of treatment, and the most efficient remedy I have employed is the bromide of iron." For children, five years of age, five grains, every six or eight hours, is the ordinary dose, which may be increased daily up to twenty grains. The best mode to administer it is in syrup. The bromide of iron has not been in use long enough to fully determine its therapeutic value. Several physicians recommend it very highly in spermatorrhea, where there is an anemic condition of the blood, with nervousness. The dose should be small, and gradually increased. It is best triturated with sugar of milk. The dose will range from five to twenty grains.

Cypripedium Pubescens — American Valerian—Lady's Slipper.

This plant is indigenous to America, and has a single stem, a foot or more high, with fibrous, branching roots, bearing three or four broad, ovate, rather downy, ribbed leaves, clasping the stems at the base, and one or two large flowers. These consist of two lanceolate, brown-purple sepals, and a pair of somewhat narrow, wavy petals, crossing each other at right angles; from the midst of them projects a great yellow pouch or bag, resembling a shoe or slipper. The root is the part used, and should be fresh.

Medical Uses.—There are three species, but the above-described one is thought to be the best. The fluid extract or saturated tincture, given in large doses, to healthy persons, causes at first a feeling of exhilaration of the mind and nervous system. After this passes off, there comes a quiet calmness, followed, if large doses are continued, by mental fatigue and a disposition to sleep. In moderate doses, however, it relieves morbid irritability; but if continued too long, or given in overdoses, it produces morbid sensibility and irritability, like all nervines. It acts upon the cerebro-spinal system, upon the gray-nerve tissue, and is very useful for its effect on over-mental exertion or reflex nervous excitement. It is indicated in hysteria, chorea, nervous headache, delirium tremens, hypochondriasis, neuralgia and nervousness, or nervous excitability. In spasms of children it may be alternated with the bromides with marked effect. The dose for children is from five to fifteen drops of the fluid extract; for adults twenty-five to thirty drops, as often as required, say every three or four hours.

The cypripedium has not been fully appreciated, from the fact that imperfect preparations have been used. It should be used in the form of a fluid extract, in doses of twenty to thirty drops, or the essential tincture, made by adding eight ounces to one pint of alcohol (76°). The dose will be from half a drachm to one drachm, repeated every three hours. This is a fine nervine. improving innervation. It acts as a tonic upon the exhausted nerve-centers, improving their circulation and nutrition by its direct tonic power. In all cases of nervous irritability and sleeplessness, from atony of the nerve-centers, cypripedium will be found to give rest and produce sound and refreshing sleep. In neuralgia, delirium and morbid vigilance, from the same condition, it will be found a prompt remedy. In typhoid fever, where the nerve-centers become exhausted, we have either typhomania or morbid vigilance, and here cypripedium will be found one of our best remedies. I often combine it with scutellaria in various nervous affections, and have not often been

disappointed in its action. In hysteria this combination, given in full doses, will do good service.

The saturated tincture may be made by covering the crushed root with alcohol (76°), steeping ten days and straining. The dose is from half a drachm to one drachm, repeated every two or three hours. The fluid extract, made from the fresh root, is a good preparation, and so is the cypripedin.

Cypripedin.—Cypripedin is the active principle of the cypripedium pubescens. This article is slightly tonic, especially to the nervous system. It is slightly antispasmodic, remarkably nervine, a little stimulating and considerably diaphoretic. In that very strange condition of the system giving rise to hysteria, this remedy, combined with scutellaria and assafeetida, gives the most remarkable relief of any combination that I have ever tried.

In neuralgia, connected with debility or impoverished blood, cypripedin, cyanuret of iron, and quinine, suitably combined, seldom fail to relieve. It seems to have an affinity for the gray nerve-tissue; consequently, in cases of exhausted innervation from over-mental labor, or of reflex nervous excitement, or from some specific poison, this is an efficient nerve tonic and stimulant. In that peculiar reflex nervous action causing epilepsy, two or three grains each of cypripedin and scutellarin, given every three hours, so as to keep the brain impressed continuously, has proven most salutary in my hands. In that exhausted state of the nervous system in advanced stages of typhoid fever, where morbid vigilance ensues, I have found no remedy so prompt and so mild as this. It allays the excited state of the brain, calms the nerves, and produces sweet and refreshing sleep. The dose is from one to four grains every three hours.

Zinci Phosphidum-Phosphide of Zinc.

Phosphide of zinc is a very prompt remedy in cerebral congestion, or apoplexy. I prescribed it recently for a friend

who, from mental toil, had become very nervous, with vertigo, and constant pain in the cervical portion of the spine, cerebellum, and medulla oblongata. He used it in doses of one-tenth grain three times a day, and it relieved him in a short time. Prof. Hammond asserts that it removes debility, mental depression and paralysis following cerebral congestion, or apoplexy. In brain-fog of business men, who become pale, depressed and sleepless, it will act promptly. I think it would act well in chorea, with imbecility; and also in cases of delirium tremens. It ought to act well in cases of impotence of a cerebral origin, especially if caused by overtaxing the mind, or from self-abuse or sexual excesses.

Prof. Hammond used it in doses of one-tenth grain, with nux vomica or strychnia, in cases of cerebral congestion of a passive character, and in cases of spinal anemia. It is evidently a nerve-tonic, and, when indicated, will be found to have a beneficial effect upon the irritated brain. It is not a sedative to the heart, but I class it with general sedatives, as it comes nearer to the bromides in action than to any other remedy. It has the direct effect of equalizing the circulation of the brain in morbid conditions of that organ; this renders it a valuable remedy in many diseases associated with this condition of the brain.

Lycopus Virginicus—Bugle Weed.

The lycopus virginicus—also called water hoarhound and bugle weed—is indigenous to this country. It is a perennial herb, with fibrous root, and a smooth, straight, obtusely four-angled stem, with concave sides, producing slender runners from the base, and grows from ten to twenty inches in height. The leaves are opposite, oblong, or ovate-lanceolate, toothed, entire towards the base, with glandular dots underneath. The flowers are very small, purplish, in dense axillary whorls; at the base of each flower are two small subulate bracts. The corolla is campanulate, four-cleft, the tube as long as the calyx,

the upper segment broadest, emerginate. Calyx tubular, four-cleft, longer than the achenia; stamens two, distant, diverging, simple; anthers erect, bi-lobed: ovary superior, four-angled; style straight, slender; stigma bi-lobate; achenia four, smooth, obovate, obliquely truncate at the apex, compressed, margins thickened. It grows in most parts of the United States in moist and shady situations, flowering in June and August. It has a balsamic, terbinthinate odor, and slightly bitter taste. It imparts its properties to boiling water.

Medical Properties.—As early as 1828 this little plant was used in medical practice by Prof. Rafinesque. regarded it as an excellent sedative, sub-tonic, sub-narcotic, and sub-astringent. Drs. Pendleton and Rogers, of New York, have published several cases of hemoptysis and incipient phthisis cured by it. This has been confirmed by Drs. Smith, Ives, Lawrence, and many others. It is one of the mildest sedatives and narcotics that we have. It acts somewhat like digitalis, and lowers the pulse without producing any bad effects, nor does it accumulate in the system as digitalis sometimes does. It is altogether preferable to that drug, as it is not only an equivalent to it, but a complete substitute. It not only lessens the frequency of the pulse, but allays irritation and cough by equalizing the circulation to the lungs. I have used it a great deal in cases of hæmoptysis, and find it a very prompt remedy in that alarming affection. As a mild narcotic it is preferable to prussic acid, as it lessens arterial excitement without inducing any debility. It is applicable in any disease where we wish to quell inordinate action of the heart. It is of much benefit in some diseases of the heart. with an excited circulation. It is one of those sedatives that may be used in any case, as it does not depress the nervous system, but seems simply to control the circulation. of hemoptysis, the infusion is, perhaps, the most appropriate form for administration, in doses of one or two ounces every half hour, until its influence over the circulation is manifest.

If there is persistent cough with hæmoptysis, it may be made in a syrup and taken with lemonade. It may be employed also in bronchitis and pneumonia, alternated with other remedies. A tincture may be prepared with alcohol (76°), eight ounces to one pint. Dose, thirty to sixty drops.

Lycopin.—Lycopin is the concentrated medical principle of lycopus virginicus. Lycopin seems to have a specific tendency to the mucous membranes, and exerts a tonic, stimulant, and astringent effect upon them. In bronchitis, bronchorrhea, and other chronic inflammations of the air-passages, lycopin may be given with marked benefit. In hæmoptysis, given in doses of eight or ten grains every hour or two, it is one of our most certain and prompt remedies. In all hæmorrhages from the mucous surface it will be found an efficient agent. It seems to produce a sedative as well as an astringent effect upon the mucous tissues. In cases of chronic bronchitis, where, from a softened state of the mucous membrane, there is constant exudation of liquor sanguinis, giving rise to almost incessant cough and profuse expectoration, this is the remedy indicated, and may be given in one or two grain doses every three hours combined with syrup of stillingia. In vaginal leucorrhea, lycopin, combined with hamamelin and iron by hydrogen, will act promptly and with certainty. In those cases of phthisis pulmonalis where there is an excessive expectoration and constant cough, lycopin will be found to mitigate these symptoms. The usual dose in hemorrhage is from five to eight grains every twenty minutes.

Nuphar Lutea-Yellow Pond Lily.

This plant was used by the ancients, but from some cause it has fallen into unmerited neglect. Diascorides and Pliny both used it, and noticed its depressing effects upon the genito-urinary organs. The physicians of the sixteenth century regarded nuphar as their most positive anaphrodisiac. It has a direct tendency to the rectum and the generative organs. It

has been very positive in its action, in my hands, in cases of spermatorrhea and prostatorrhea. I had a case recently of a young man who had spermatorrhea and prostatorrhea. After I had tried various remedies to no purpose, I put him upon nuphar, and he soon began to improve; his nocturnal emissions occurred more and more seldom, the prostatic discharge grew less, and to all appearance he is getting well. I use a saturated tincture, in doses of ten to fifteen drops three times a day. A fluid extract, properly made, would be a good preparation, and might be given in doses of five to ten drops. It has proved very valuable in morning diarrhea, in the hands of some physicians. Prof. Hale, of Chicago, relates several cases of spermatorrhea cured by this article. (See New Remedies.) It will always prove a valuable remedy in those cases attended with satyriasis. It controls the excessive desire for sexual indulgence with more promptitude and certainty than any other remedy that I have ever used. For this purpose it should be given in moderately large doses —say twenty to thirty drops every three or four hours. It is a valuable remedy in nymphomania, and in vaginitis attended with sexual desire.

Nymphæa Odorata.-White Pond Lily.

This article should be tinctured, or a fluid extract made from the fresh root. Nymphæa directly influences the mucous surfaces of the throat, bronchi, gastro-intestinal and genito-urinary tracts. It is effective in diseases in which there is excessive secretion of mucous or muco-pus, or in cases of ulceration with acrid and offensive discharges. It is a good local as well as internal remedy in many mucous diseases. An infusion has served me well in many cases of acrid leucorrhæa. I have benefited some cases of ulceration of the os uteri with a wash of this drug. It has stayed the progress of cancer of the uterus, and thus prolonged life, and mitigated the sufferings of the patient. It is valuable in aphthous sore throat.

CHAPTER III.

Emetics.

This class of remedies is not so much used now as formerly, yet there are circumstances that render them necessary in the course of any man's practice, as where poisons are swallowed. In such cases a drachm of pulverized mustard may be administered, or four or five grains of the sulphate of zinc may be given, dissolved in a gill of water. In ordinary practice an emetic may be given in the commencement of pneumonia, pleurisy, bronchitis, and some other diseases. Diaphoresis is often produced by an emetic more readily than by any other means.

Apomorphiæ Hydrochloras—Hydrochlorate of Apomorphia. C₁₇H₁₇NO₂HCl.

The hydrochlorate of apomorphia is a grayish-white salt, crystalline in character. It is soluble in water and alcohol. It must be kept from the air or moisture. Given hypodermically, in doses of $\frac{1}{16}$ gr. in a freshly prepared solution, it quickly produces emesis; given internally, $\frac{1}{8}$ gr. acts as a quick emetic. The hypodermic method is applicable when the stomach is inflamed, or when the patient cannot swallow well. It may fail when the patient is under the influence of narcotic poison, as its action depends upon a direct influence on the root of the pneumogastric nerve, and the spinal cord. It is a good remedy to empty the stomach in asthma, or when it is necessary to evacuate the stomach in sunstroke, or when the patient has swallowed poison.

Cephælis Ipecacuanha—Ipecac.

Ipecacuanha is a native of Brazil, and some other South American States. It grows chiefly in the forests, and in the deep valleys of the mountains. The root occurs in pieces three or four inches long, about the size of a goose-quill, and has a knotty appearance, something like beads strung upon a cord. It varies in color, generally gray, brown, or red; it breaks with a resinous fracture; its taste is bitter; its odor is faint and mawkish; water or alcohol extracts its virtues. The powder is most used as an emetic, but the tincture of the fresh root is preferred for its general effects.

Medical Uses.—This is one of the mildest and most certain vegetable emetics, operating without excessive nausea or exhaustion. In small doses, the tincture is a soothing tonic to the mucous membranes of the stomach and bowels, and is required in the nausea and vomiting of many diseases. It is now found very useful in dysentery, in one-half to one grain doses. As an emetic, the dose is fifteen to thirty grains.

Lobelia Inflata-Indian Tobacco.

Lobelia is indigenous to the United States, growing in fields and uncultivated cleared lands, and very frequently along lanes. It should be gathered in the months of August and September, and dried in the shade. The leaves and seeds are officinal. The dried herb is of a green color and has a nauseous smell, with a burning and acrid taste; the seed yields an oil which is a powerful emetic.

Physiological Effects.—This drug, in large doses, produces violent emesis, with intense relaxation of the muscular system, and even prostration. The pulse becomes feeble, cold sweat on the skin, paleness of the countenance, and purging also may ensue. There are cases of fatal poisoning on record, where this article was given for too long a time. The danger is greater in those cases where vomiting does not occur. Burning in the fauces, and esophagus, epigastric distress, with

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intense prostration of the entire muscular apparatus quickly takes place. If the drug be repeated, a complete collapse ensues, and finally, stupor, coma, tremblings, and sometimes also (upon the law of Similia similibus curantur) convulsions precede a fatal termination. It appears, that in large doses, lobelia seems to paralyze the vaso-motor centers. The antidotes to the toxic effects of lobelia are, a warm solution of tannic acid to wash out the stomach after emesis, then ammoniacal or alcoholic stimulants, and the application of dry heat by frictions, or mustard to the extremities, and surface. In doses of twenty to thirty drops, lobelia will not produce any dangerous effects, but in doses of one or two ounces, as it was once given by Botanic doctors, it is extremely dangerous. The fluid extract is often used, and is not dangerous in doses of five to fifteen drops, every two hours.

Medical Uses.—Lobelia is a very prompt emetic, and at the same time a powerful relaxant. If it fails to produce emesis, it produces catharsis. If it be given in large doses and long continued, it produces general prostration. But few remedies have been more abused than this one. I seldom give it as an emetic alone, but combine it with ipecacuanha, equal parts, and give fifteen or twenty grains every half hour until they operate, and find that they act mildly and certainly. In croup or asthma, the above combination has acted very finely with me, never failing to give prompt relief. In croup I often combine the tincture of sanguinaria with the tincture of lobelia, two parts of lobelia to one of sanguinaria, and give according to the age of the patient, say from ten to thirty drops every hour or two until the disease is relieved. No physician who has used the above combination in croup will possibly do without it. It is expectorant, but as an expectorant I prefer the sanguinaria and senega to the lobelia. In spasmodic diseases it acts very promptly, in full doses, allaying spasmodic action at once. The saturated tincture is made with eight ounces to alcohol one pint; the dose is from two to four drachms, repeated every twenty minutes

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until it produces emesis; one or two drachms will usually produce the desired effect.

Lobelin.—Lobelin contains in concentrated form, the medical properties of the lobelia inflata. Lobelin, when made scientifically, possesses the properties of the crude lobelia, and in proper doses is a mild and efficient emetic. As an emetic, I usually combine it with ipecac; and this combination is applicable in catarrh, bronchitis, pneumonia, pleuritis and fevers, in the forming stage. In the commencement of many diseases where the gastric surface is coated with a tough and vitiated phlegm, the above combination will remove it and prepare the system for the action of other remedies.

In the incipiency of pneumonia, bronchitis and pleuritis, the lobelin and ipecac not only remove any morbid contents of the stomach, but relax the constriction of the cutaneous exhalants and thereby promote diaphoresis, and also control the excited circulation. The lobelin does not, like some other remedies, manifest a specific tendency to individual organs or tissues; yet, it exerts a controlling influence over the entire organic structure, which at once points out its superior importance in the treatment of many morbid conditions. In all diseases of the chest I have used it extensively, and have found it a potent remedy. In pneumonia and bronchitis, I find it very salutary, combined with veratrin and sanguinarin, and often sufficient to cut short these diseases.

Prof. L. D. Ford, of Augusta, Ga., in a lecture before the class in 1843, induced me to try this remedy in the early stages of pneumonia, and I soon learned to appreciate its value in this disease. If the patient is kept under its sedative influence for the first two or three days of the attack of pneumonia, it frequently removes all traces of the disease without further treatment. In the forming stage of catarrh, lobelin is the remedy par excellence, for it relaxes the constricted capillaries, equalizes the circulation, and promotes diaphoresis and elimination from

the system generally. In the advanced stages of pulmonary inflammations, I usually combine veratrin and aconitin with the lobelin, to more readily control the excited state of the heart. But the specific influence of lobelin is most apparent in the prompt relief of the paroxysms of asthma. No remedy I have ever tried equals the lobelin in the treatment of asthma, in doses of one or two grains, repeated every fifteen minutes until it produces emesis; and to ward off the attacks, one-eighth to one-fourth of a grain of lobelin and two grains of quinine every four hours, will be found to act very promptly. In all spasmodic affections, lobelin, combined with skunk-cabbage and gelsemin, will be found to act with promptitude. The usual dose as an emetic, is one to three grains; or triturated, one grain to ten of lactine; dose, ten to thirty grains.

Oil of Lobelia. — This oil is obtained from lobelia inflata. It is a fixed oil of the seed of the lobelia, and is a very prompt and active emetic and antispasmodic, and something of a diuretic. From one to five drops act as an emetic and anti-The most eligible form of administering it, is to triturate with lactine or white sugar. It should always be followed by warm water or some kind of tea. Triturated in glycerine, ten drops to the ounce, and one grain of sanguinarin added, it forms a prompt remedy in croup; and ten drops added to one ounce of ether and inhaled through an inhaler. will promptly relieve the paroxysms of asthma. In the treatment of pneumonia, ten or fifteen drops added to an ounce of fluid extract of asclepias and twenty drops of tincture of veratrum, giving one drachm of the mixture every hour until the system is relaxed and the action of the heart controlled, then lessening the dose and prolonging the intervals, will control the disease as promptly as any remedy that I have ever tried. If commenced early, it generally cuts short the attack. common catarrh, a few drops of the oil of lobelia added to a teacup of ginger tea and taken until perspiration results, will generally relieve the attack in a few hours. In spasms of

children, one or two drops of this oil given every ten minutes until emesis, will promptly control the spasms. The dose is from one to eight drops, pro re nata.

Euphorbia Corollata - American Ipecac.

The euphorbia corollata is an indigenous plant; perennial, growing in sandy, barren soils. It is generally known by the name of milk-weed, blooming spurge, bowmens' root, etc. The plant, when broken, yields a milky juice of an acrid character. The roots, which are used, are two feet long and often an inch or more in thickness, and are light and brittle when dried. They are of a yellowish-gray color externally, with a white center, and possess a feeble taste, which is followed by a sense of acrimony. It yields euphorbin.

Physiological Effects.—The action of this species of euphorbia is milder, but somewhat similar to that of the European species. The mucous membranes of the stomach and intestinal canal are profoundly influenced by euphorbia corollata. In large doses of the root or its tincture, it produces great nausea and vomiting, followed by diarrhæa of a serous, watery fluid, with painful colic, prostration, cold sweat, cramps like those of cholera, cholera morbus and cholera infantum. Yet, in small doses (upon the law of "Similia similibus curantur") it cures the above diseases. Some writers recommend it in medium doses, to remove the serum in dropsy; it acts then as a hydragogue cathartic. If this article is continued too long, in pathogenetic doses, it produces bloody stools, with tormina and tenesmus—a dysentery, but in small doses it cures it.

Medical Uses.—Euphorbia is emetic and cathartic, but is not so much used as a cathartic as an emetic. Like most emetics, it is expectorant and diaphoretic in small doses. In large doses it is a powerful emetic, but is too harsh for ordinary purposes. In small doses it may be used with much advantage in diseases of the mucous membrane of the bowels, as in cholera, cholera morbus and cholera infantum. For this

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purpose one grain may be triturated with nine of sugar of milk, and one grain of the triturated article given every half hour or hour until the irritation is controlled. It has been used in diarrhea and dysentery with good effect. It may be used, like ipecacuanha, in irritability of the stomach and in vomiting, in doses of one-tenth to one-twentieth of a grain every ten or fifteen minutes until the vomiting ceases; in small doses it has thus a specific effect upon the mucous surface. The dose as as emetic, is from ten to fifteen grains, repeated until it produces emesis.

Euphorbin.—Euphorbin is the active principle of the euphorbia corollata. Euphorbin in doses, say two to three grains, is an emeto-cathartic; in small doses, as one-tenth to one-sixteenth of a grain, it is a diaphoretic, slightly sedative. and somewhat alterative. If continued for three or four days in small doses, alvine evacuations are increased, the congested liver is emulged, and much benefit may be derived from it in this way. It may be combined with other alteratives in syphilis, as podophyllin, phytolaccin, corydaline, chionanthin and the iodides. In cases of hepatic torpor and constipation of the bowels, it may be combined with leptandrin, euonymin, podophyllin, etc. As an emetic it is inferior to lobelin, as it is more debilitating in its action on the system. In glandular enlargements, it may be combined with menispermin and the iodide of potassium, say one-tenth of a grain of euphorbin to two grains of menispermin, and one grain of iodide of potassium given every three hours: this is a good alterative. It is said to be prompt in arresting the night sweats of phthisis, when given in small doses, say one-twentieth of a grain every four hours. It is also said to be a prompt remedy in diabetes. when combined with helonine. The dose as an emetic is two to five grains: as a diaphoretic and alterative, from one-fourth to one-twentieth of a grain.

Apocynum Cannabinum—Silk Weed.

The apocynum cannabinum is an emetic, in large doses, say forty to sixty grains of the root, or sixty to one hundred and twenty drops of the fluid extract, and it also proves diaphoretic after it produces emesis. But it is more commonly used in doses of ten to fifteen minims of the aqueous extract or infusion (saturated), in dropsy, in which disease it has few, if any equals.

CHAPTER IV.

Antiphthisics.

(SUCH REMEDIES AS COUNTERACT TUBERCLE.)

The Hypophosphites.

THE salts of hypophosphorus acid, known as the alkaline hypophosphites, were first made known to the profession by Prof. Churchill. He believed they were the remedy long sought for—a specific for phthisis pulmonalis—but his anticipations have not been realized. He believed that tubercular disease was due to a deficiency of phosphorus in the system, and that in the hypophosphites, the phosphorus was decomposed and assimilated. He also believed that this was the only form in which free phosphorus could be safely taken into the stomach.

Physicians, acting upon his suggestions, used the hypophosphites freely, often in excessive doses; not finding them specifics in all cases, many abandoned them, and the greater part of those who tried them appear to have lost confidence in them. But when given in time, according to the characteristic indications for such remedies, they are certainly beneficial in the earlier stages of tuberculosis. It is too late to prescribe them when the lungs have already decayed beyond repair.

Calcii Hypophosphis-Hypophosphite of Lime.

Hypophosphite of lime, administered in proper doses (and that need not be large), increases nervous force, thereby giving an increase of vitality to the healthy material of which all the organs are composed. The only way that such diseases as phthisis pulmonalis, which consist in a lowered vitality, can be cured is by correcting this condition. Hypophosphite of lime aids in overcoming the disease by increasing nervous force, which gives greater activity to all the vital functions. The hypophosphites should be aided by the administration of such tonics as will increase the power of digestion and assimilation. The patient should be furnished with such food as can easily be converted into living tissue; not slops, which contain little or no real nourishment.

The excessive use, however, of the hypophosphites tends to hæmorrhages, such as excessive menstruation in females; hæmorrhoids, profuse epistaxis, and pulmonary hæmorrhages in both sexes. They produce a greater fullness of the bloodvessels of the hands and feet, and therefore should not be used excessively. If so used they may produce pulmonary inflammation, which often occurring without any remedy tending that way, proves fatal.

I have often given them in the incipiency of consumption, combined or alternated with tonics, with marked benefit. The cough, hectic fever, night-sweats, nervous prostration, rawness of the chest, hemorrhage from the lungs, and other symptoms of the disease gradually give way under the hypophosphites. In doses of half a grain to one grain, three or four time's a day, these act finely, and in scrofulous manifestations also, this article will aid other remedies in restoring the system to a healthy condition.

In children with an overgrown head, open fontanelles, distended abdomen, swelling of the lymphatic glands with tendency to brain affections, abscesses, and catarrhal discharges it acts very promptly. In tubercular meningitis, if given early, it will often arrest the disease in a short time. In many cases, after exhausting diseases, patients are attacked with severe cough, with soreness and tenderness of the chest. Here the

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hypophosphite of lime will do good service, and frequently restore the patient to wonted health.

In marasmus, from mesenteric disease, there are few remedies that act with such extreme promptitude. After exhausting discharges of blood, mucous, semen, pus, or any excessive secretion, this remedy will aid materially in building up the tissues again, and will also arrest the abnormal waste of the fluids. In caries of the bones, spinal curvature and rachitis, this is one of our most positive helps, and cannot be dispensed with.

In cases of tardy teething in children, and of deficient osseous development from a want of nervous energy, this hypophosphite is a superior remedy, but it should not be given in large doses. It has been generally advised to mix the various phosphites together; this has been one great cause of the frequent failures in their use. They are each indicated respectively by peculiar constitutional conditions of the system, like the alkalies with which they are formed. We have much yet to learn with regard to the indications of alkalies, acids, and the compound salts; and until we pay special attention to these facts we cannot succeed well in their use. In some cases, no doubt, a combination of several of the phosphites may have done good, but in others it has failed. The dose is from half a grain to two grains.

Potassii Hypophosphis-Hypophosphite of Potassium.

This salt has its range of action, but is quite different from that of the one just considered. The lime salt acts more through its influence over the nervous system and bony structures, glands, and assimilative organs; while the hypophosphite of potassium acts on the muscular as well as on the nervous tissues of the body; at the same time it has some action upon the same tissues that are influenced by the lime salt, but its action is not as great. The hypophosphite of potassium affects the bronchial mucous membrane instead of

the parenchyma of the lungs, and hence is more useful in chronic bronchitis than in phthisis. In bronchitis attended with severe pains it is a very valuable remedy. It relieves the excessive cough, and strengthens the thoracic muscles so as to enable the patient to get rid of the phlegm. In cases also of great muscular exhaustion from previous drains of the fluids of the body, as in lactation, loss of semen, and profuse expectoration, the potash salt will be found a good remedy. In anaemia and emaciation this salt may be alternated or combined with iron, as it aids the action of iron very much. I frequently alternate it with pyrophosphate or the simple phosphate of iron in such conditions. In anaemia, hydrastis, helonias, and aletris may be alternated with hypophosphite of potassium.

The hypophosphites of sodium, iron and ammonia have been used, but not to any great extent. The soda salt answers in nervous debility. It may be given in doses of one or two grains.

Oleum Morrhuæ-Cod Liver Oil.

This oil, when pure, is prepared from the liver of the codfish (Gadus Morrhuæ), but is now so often adulterated with linseed and other oils, that there is no certainty in using it. When pure it consists principally of margarate and oleate of glycerine, some of the elements of bile, with traces of butyric, acetic, and other organic acids; traces of iodine and bromine, and a minute quantity of resinous-like matter called gaduin. The glycerine, oleine, bromine and iodine give to it its chief medical virtues.

Therapeutic Action.—It has always been regarded as alterative, nutritive and diuretic, but its alterative effects are feeble. It is nutritive, and to this and a slight tonic effect it owes its therapeutic powers.

It has proved of service in scrofula, not so much by any alterative power as by its tonic powers and its nutritive principles. It has long enjoyed a high reputation in that dreaded disease—consumption; and if patients would commence its use early enough, take it in connection with good tonics, such as ptelia and euonymus, take exercise and live on rich food, it would prove of much service to them, but most of them wait too long to commence with it. When large vomica form in the lungs nothing will do much good towards arresting the rapid decomposition of the lungs. This oil, combined with hyperphosphate of lime and soda, has done good service in many cases that have come under my observation. The usual dose is from half an ounce to two or three ounces, three or four times a day.

Firwein.

Firwein is a compound composed of the medical principles of the balsaminaceæ, cerifereæ, leguminosæ, pinaceæ, styraceæ, with a definite quantity of phosphorus, iodine, and bromine added. The above orders of trees and plants yield balsams, resins, and oleo-resins, associated with acids and volatile oils, which render them very valuable remedies in diseases of the lungs and bronchial tubes. They have all been used from time to time, in the form of vapors, tinctures, syrups, and infusions, in catarrh, bronchitis and phthisis; but the above combination is due to Tilden & Co., of New Lebanon, N. Y., and to them the profession is indebted for one of the best remedies in lung affections.

In catarrh, firwein has proven very successful. In chronic bronchitis and phthisis it has proven one of the best of remedies, palliating the cough, toning up the digestive and assimilating systems, and thus preventing undue waste of tissue.

The above balsamic and oleo-resinic extracts, associated with phosphorus and iodine, as they are in firwein, give this remedy a very wide range of action. It is not only palliative of the cough, but is very potent in its reconstructive influence over the diseased tissues. It not only exerts a curative influence over the mucous coats of the respiratory apparatus, but

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also over the mucous membranes of the uterus, bladder and urethra. I have recently used it in several cases of chronic bronchitis, and find that it lessens the distressing cough and the profuse expectoration, and increases the appetite of the patient, thus preventing the prostration that always attends such cases. Some physicians report cases of phthisis rapidly improved by firwein given with cod liver oil and pyrophosphate of iron. Several physicians report cases of chronic bronchitis cured by firwein.

Dr. Todd, of Jefferson Medical College, Chicago, Illinois, says: "I have made trial of the new remedy, 'firwein,' in several cases of sub-acute and chronic bronchitis, both uncomplicated and complicated with asthma and emphysema, and the majority were entirely cured by its use." Dr. S. R. Nissley, of Pemberton, Ohio, reports a case of laryngitis, of six years' standing, with complete loss of voice on exposure to cold, cured by firwein in a short time. Dr. James H. Etheridge, associate editor of the Medical Journal and Examiner, Chicago, Illinois, reports a case of bronchial catarrh, of seven months' standing, cured by this new remedy. Dr. Leaning, of Fly Creek, New York, reports the case of his only son, who he says had bronchitis and consumption, and who was cured with firwein, cod liver oil and lime. It is highly praised in nervous headache; also in diabetes, combined with compound elixir of iodo-bromide of calcium. It will be seen from the above reports of the limited use that has been made of this new remedy, that it is proving very successful in lung and throat affections; in fact, it is proving more efficient than any remedy yet discovered. The dose is from one to two drachms, three or four times a day. It is a good vehicle for the administration of cod liver oil.

This article has now been more thoroughly tested, and is beneficial, like other balsams, in bronchitis, but has failed in cases of tuberculosis.

Plantago Major-Plantain.

The tincture from the root and top, applied on lint or cotton, renewed every half hour until it gives relief, is a most valuable remedy in bruises, tooth-ache, ear-ache, etc. Internally, it is very highly recommended for phthisis pulmonalis, in doses of three to five drops every two hours, especially when the disease is attended with hæmorrhage of the lungs. It is also a remedy for menorrhagia, leucorrhæa, dysuria and hæmorrhoids, especially when the pile tumors are large and painful. In enuresis of children this is a specific, dose one to three drops every two hours, according to the age of the child. Where children cut teeth with pain, the saturated tincture rubbed on the gum, and given inwardly, very much relieves the pain and fever. It may be alternated with creosote, one-tenth of a drop ter in die.

CHAPTER V.

Stimulants.

As stimulants are just opposite in action to sedatives, they may, with propriety, be next described. Stimulants pass into the blood, thence to the nerve centers, and exalt nerve force in general, or in particular. Some of them extend their operation, more or less, to the entire nervous system; others confine their action to particular parts of the nervous system.

They are divided into two orders, that is, into general and special stimulants. General stimulants include all those medicines that are commonly regarded as stimulants. They influence the whole nervous system, more or less, but they obviously influence the circulation. They increase the frequency and force of the pulse. Some of them improve digestion for a time by their influence over the sympathetic nerves, but in large doses they are liable to become irritants, and thereby impair digestion. It seems that stimulants have not only the power, as some maintain, to call forth nerve force already in the system, but they actually cause nerve force to be more rapidly generated.

One great mistake of therapeutists is that they do not consider the difference between nerve force and vital force. Nerve force may be much increased in a given case, as in inflammatory fever, without an increase of vital force. And on this depends the material aid of a stimulant in conditions of great depression. If there is a failure of vital force no stimulant will really prolong life, for it cannot create additional vital power. But there are cases of depressed nerve power, without a corresponding deficiency of vital power; in such cases a stim-

ulant will do much good in prolonging the tenure of life, for a deficiency of nerve force diminishes all the functions, and when it fails entirely, the circulation fails, and death is the inevitable result. It is by nerve action that vital force is created: that is, the functional activity of the various vital organs develops vital force. But there are conditions in which the excitability of a function or functions may be so far exhausted that stimulants can do material good. Such cases are more likely to be benefitted by tonics than by stimulants. Stimulants can only counteract that failure of nerve force which hinders the development of vital strength. Stimulants are used in sudden depressed conditions, such as may occur in some acute disorder: but in chronic diseases, where there is real feeble vitality, tonics are required. But in a case of syncope, or depressed circulation from nervous shock, stimulants are appropriate. In the latter stages of typhoid fever, or of pneumonia, where there is great depression of the nerve force, from the direct action of a zymotic poison on the sympathetic system, stimulants will do good by counteracting the depressive effects of the poison on the brain.

Ammonia. Ammonii Carbonas-Carbonate of Ammonia.

Ammonia and its carbonates are very direct stimulants. The carbonate of ammonia is a very positive stimulant, and one that will generally answer the purpose of that class of remedies. It is direct and quite uniform in its action. In low forms of febrile and inflammatory diseases, where nervous exhaustion exists, carbonate of ammonia may be given in five or ten-grain doses every three or four hours. In cases of syncope the aqua ammonia may be inhaled freely; this has the same effect upon the nervous system that the carbonate does when taken by the mouth. Aqua ammonia may also be given in doses of twenty to thirty drops, every two or three hours, in any case where a mild stimulant is demanded. I have used it in those cases of atonic dyspepsia where there was fermenta-

tion of the food as well as a depressed state of the gastric nerves. I have used it with good effect in the bite of serpents and spiders.

Xanthoxylum Fraxineum—Prickly Ash.

This shrub grows twelve to fifteen feet in height, with alternate branches, which are armed with strong prickles, with broad base, most frequently in pairs, at the insertion of the young branches. The leaves are alternate and pinnate, the leaflets about five pairs, with an old one, nearly sessile, ovate, acute, with slight vesicular surratures, somewhat downy underneath. The common petiole is round, usually prickly on the back, and sometimes unarmed. The flowers are in small, dense, sessile umbels, near the origin of the young branches; they are small, greenish, diccious, or polygamous, and appear before the leaves, and have an aromatic odor. There is another species in the Southern States, the Xanthoxylum Carolinianum, or Southern Prickly Ash, which attains to the height of forty feet, and has a diameter of some ten or twelve inches. It grows in the rich lands of Louisiana, near New Orleans, as I have been informed. The bark and berries are the parts used as medicines.

Medical Properties.—Rafinesque was the first physician among the white race in America who investigated its medical properties. He obtained his first knowledge of its medical uses (as he did that of many others of our most valuable indigenous remedies) from the Indians. They used it for colic, gonorrhæa, syphilis, rheumatism, toothache, ulcers, etc. It resembles mezereum and guaiacum in its medical properties, especially in chronic rheumatism. The xanthoxylum is a good stimulant in doses of one or two grains. It was much used at one time as a remedy in paralysis, but does not seem to have sustained its reputation. The fluid extract has a good effect upon the mucous membranes. It is made from equal parts of the berries and the bark. Dose, half a drachm to one drachm.

The xanthoxylum is a direct stimulant to the mucous membranes of the alimentary canal and air passages; also to the urinary organs. Upon the trachea, stomach and intestinal mucous membranes it exerts a topical influence prior to absorption. In many chronic diseases of the mucous membranes of the above parts, its exciting influence is very valuable. In cases of great enfeeblement of the mucous membranes, or of great relaxation, with excessive secretion, xanthoxylum will be found to act promptly. As a general diffusible stimulant, it is not as valuable as some others of its class.

It is best prepared from the fresh bark, by adding eight ounces to one pint of alcohol. Dose, five to ten drops, repeated every hour or two, as the case may require. The berries are used as a prompt aromatic stimulant and antispasmodic to the mucous membranes. In flatulence and spasmodic affections of the stomach and bowels, they act promptly. They have been used with benefit in Asiatic cholera. There is also an oil manufactured from the berries, the dose being from two to five drops. The extract, xanthoxylin, possesses the properties of the bark. The dose is from one to two grains.

Xanthoxylin.—Xanthoxylin is the active principle of the xanthoxylum fraxineum. Xanthoxylin is a mild but direct stimulant in full doses. In doses of one or two grains, every hour or two, it accelerates the action of the heart, increases the heat of the body, and excites the nervous system, much like electricity. In cases of great prostration, in the advanced stages of exhausting diseases, where diffusible stimulants are requisite, this article affords one of the best of that class of remedial agents. In scarlet fever and measles, where the eruption is slow to appear upon the surface, or recedes after it has once appeared, the xanthoxylin may be combined with macrotin. In diphtheria, where there is great debility, this will be a prompt stimulant. In the collapse of cholera, one grain of xanthoxylin and two grains of capsicum, given every fifteen minutes, will soon produce reaction, if the life forces are not

too far spent for reaction to take place. In cases of feeble digestion, this is often combined with tonics to stimulate the gastric nerves. It possesses secondary alterative properties, and may be given whenever a stimulating alterative is required, as in rheumatism and tertiary syphilis, or in scrofula, where there is debility connected with the disease. The dose is from one to three grains every one, two or three hours, according to the urgency, etc.

Aralia Spinosa-Prickly Elder, Toothache Tree.

The Aralia Spinosa is found growing near streams and in the rich land on fence-rows all over the Southern States. bark is the part used, and is beset with sharp prickles, having a pungent, bitter, acrid taste. It is an exciting stimulant, somewhat diaphoretic and alterative. The fresh bark, in large doses, is emetic and cathartic. In diseases involving the mucous membranes, where there is great relaxation and debility, the prickly elder will do good service. In the cholera of 1849 and 1850 it was much used (in cases where cathartics produced a harsh impression), to modify the action of the cathartics, and to excite the torpid mucous membranes. In such cases we recommend the compound powder of rhubarb, in doses of one ounce, and powdered bark of prickly elder, onehalf ounce, mixed and given in half-drachm doses every half hour until it operates. In these cases it had the most salutary effect, lessening the choleraic discharges, quieting the system and lessening the pain. The local effects of the bark on the salivary glands are valuable in some cases of sore mouth, attended with dryness, as it is a powerful sialogogue. It is used with good effect in wind colic, or dry gripes. It is aromatic and expels the gas from the stomach very promptly. tincture is the form most available for use. It may be made by adding eight ounces to one pint of alcohol. Dose, ten to twenty drops, as required.

Capsicum-Cayenne Pepper.

Cayenne is a most powerful local stimulant: but it is not so powerful as a general stimulant as some others of its class. The reason that it does not act as a general stimulant is that it is decomposed before it is absorbed and thrown into the circulation, consequently it is only a local excitant to the parts with which it is in contact. As a local stimulant it is used with good effect in putrid and other forms of sore throat. In putrid sore throat, it not only serves to stimulate the feeble capillaries, but exerts an antiseptic influence upon the decomposing tissues. There is also an astringent effect produced by it that is of much value not only in inflammation of the throat, but in some cases of hæmorrhage. In passive hæmorrhage of the uterus, it is very valuable. It is often used in the form of a liniment or poultice to the skin as a local stimulant. The oil, cut with alcohol, constitutes the basis of many patent pain alleviators and pain killers, as those of Davis, Tutt, and others. It exerts the ordinary revulsive effects of other rubefacients, and is often used where it is not indicated. In cases of atonic dyspepsia, where there is torpidity of the nerves of the stomach, it may be given with advantage: and sometimes it is very essential, as it excites the stomach through the solar plexus, and thereby the vegetative functions. Dose, one to ten grains.

Aristolochia Serpentaria-Virginia Snake-Root.

Serpentaria is a mild stimulant, especially to the sudorific glands, and is more appropriately classed with diaphoretics. but its mild stimulant impressions are quite desirable in low forms of typhoid conditions of the system. Some writers attribute to it tonic properties, but its tonic properties are feeble. It may be appropriately used in cases demanding a mild stimulant and diaphoretic. Its special affinity is for the sudorific glands. The dose of the tincture, saturated, is from half a drachm to one drachm.

Aristolochin.—Aristolochin is the proximate principle of the aristolochia serpentaria. This concentrated principle has not been long used, but the well-known virtues of the crude article warrant the value of the extract, if prepared so as to get its medical principles entire. It possesses nervine, tonic, stimulant, antiperiodic and diaphoretic powers in a marked degree, and consequently it is indicated in depressed or exhausted conditions of the nervous system, as in typhoid, typhus, puerperal, and long-continued attacks of marsh fevers. It acts kindly and favorably upon the depressed nervous system, and hence is applicable in the latter stages of many diseases, as small-pox, scarlet fever, pneumonia and diphtheria; for while it supports the sinking vital forces, it also determines to the surface, and as a diaphoretic, aids the vis medicatrix naturae to rid the system of any offending matter that may be in it. As an antiperiodic, this remedy may be combined with quinine, especially in lymphatic temperaments, with the happiest effects. As a nerve stimulant it acts very promptly, and has long been used as such, that is, the crude article has been used long as a cordial stimulant to the depressed nervous system, and the aristolochin may be used for the same purpose. It resembles cypripedin in its action upon the nervous system. The dose is from half a grain to two grains, repeated every two or three hours; or triturated, one grain to ten of lactin, the dose is from five to ten grains.

Terebinthina—Spirits of Turpentine, Oil of Turpentine.

Spirits of turpentine is a very powerful stimulant in large doses. In moderate doses it is a mild stimulant, especially directing its action to the kidneys and bladder. If given in large doses, or continued too long, it is liable, with many persons, to produce strangury and bloody urine. In many cases of typhoid fever, where there is ulceration of Payer's glands, turpentine emulsion, made by adding thirty drops of turpen-

tine to one ounce of a thick mucilage of gum acacia (dose one drachm), has seemed to have a good effect in my hands. It gently stimulates the mucous surface and soothes the inflamed glands, arresting the ulceration, etc. As an anthelmintic, I have used it with good effect by dropping three to five drops on sugar and giving it three times a day.

Alcohol-Brandy, Wine, Etc.

Alcohol is a powerful stimulant, but at the same time it is an active inebriant; it is mostly used in the form of brandy, whisky and wine. There are cases of extreme nervous prostration where the innervation to the vegetative functions is feeble, in which brandy or wine will do good service; but it is often resorted to in cases where, from an enfeebled state of vital force, it can do no good, but often harm. In that peculiar nervous depression that exists after the bite of poisonous reptiles, brandy is a very positive remedy. It not only exalts nerve force and thereby sustains the system under the powerful shock, but it increases elimination of the virus from the system, and in this way it is much better than ammonia or other stimulants. I have treated a great many cases of serpent and spider bites with brandy, and have always succeeded in relieving the patients. In many cases I combine ammonia with the brandy. In order to get the antidotal effects of the brandy in snake-bite, it must be given so as to exalt the nerve force, and thereby accelerate the circulation and maintain that condition until the virus is entirely eliminated from the system. Brandy is often given in low forms of fever, where, from zymosis, the nervous system is much depressed. In such cases it may act well, provided it is judiciously administered; but if it does not render the pulse softer, slower and fuller, it will not be tolerated.

It is never proper to give stimulants where the febrile symptoms run high, indicated by a flushed face, quick, corded pulse, hot, dry skin, and headache. But if the circulation is feeble,

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the skin cool or moist, the countenance pale, no headache, stimulants will generally do good; but it must be remembered that stimulants cannot supply the place of food. As I have stated in my remarks upon the general action of stimulants, they do no good where there is no vital force; hence the system must be nourished and the vital force sustained thereby, while the feeble powers of the nervous system are aroused by artificial means. Nothing but food can sustain the vital powers. Stimulants may increase for a limited time the nerve energy of the organs of digestion and assimilation, and thereby increase the vital powers; and in this way, and this way alone, can stimulants aid in sustaining the feeble powers of life. Hence, in debility or great prostration, stimulants, given with proper nourishment, may be made a valuable means for the restoration of health.

Stimulants should never be given too long, or in too large quantities, as in either case they are liable to produce local irritation of the gastric mucous membrane. To avoid this they should be well diluted with water, and given in as small doses as will answer the purpose; one ounce of wine or one half ounce of brandy, repeated every one or two hours. is generally a sufficient dose.

CHAPTER VI.

Special Stimulants.

THERE are many other articles in the list of general stimulants, but as they are feeble and as most of them are aromatics and antispasmodics, they will be noticed under those classes. Special stimulants are remedies that pass from the blood to the nerves or nerve centers, and exalt the energy of particular nerves or sets of nerves; they do not affect the entire nervous system, but operate upon a particular set of nerves with great energy. The cause of this special affinity is hidden in obscurity from us. It may, perhaps, be in the chemical structure of the article, and that of the part of the nervous system upon which each remedy acts. It is the specific tendency of the article in accordance with the peculiar adaptation of its chemical constituents to the molecular arrangements of the nerve centers on which it acts. This is the most reasonable solution of the mysterious action of medicines, and of the action of morbid poisons that produce definite forms of disease. We cannot account for the action of either upon any hypothesis but There are many articles embraced in this class, but we deem it useless to call attention to all of them, and will only notice the leading articles of the class. They constitute an indispensable class of remedies, some of them, as ergot, nux vomica, uva ursi, etc., directly correcting certain morbid conditions that exist in various diseases.

Nux Vomica—Strychnia.

Physiological Effects.—The brain is not affected by this drug, but it quickly attacks the spinal cord, producing very

violent tetanic spasms; more especially it influences the reflex excitability of the organ. In large doses, strychnia also paralyzes the efferent motor nerves, causing loss of power in the voluntary muscles. It stimulates the vaso-motor and respiratory centers to some extent. It also raises arterial pressure. Strychnia is an excellent remedy in some cases of paralytic and emphysematous asthma.

Strychnia produces death by spasmodic fixation of the diaphragm and respiratory muscles in general.

This drug, by aiding oxidation, and removing the products of waste, has a direct tonic influence over the digestive apparatus in general. The dose of strychnia should not exceed one-thirtieth of a grain, as some individuals are very susceptible to its influence. The drug should always be discontinued as soon as twitchings and slight rigidity occur about the jaws and face.

Large doses produce opisthotonos, extension of the legs, and eversion of the feet, and this effect follows in about fifteen or twenty minutes. Painful spasms follow in quick succession, until their intensity becomes so great that death takes place from asphyxia. Nux vomica stimulates the circulation, raising arterial pressure. This is probably owing to vaso-motor spasm. All the paralyzers, as wourari, conium, tobacco, opium, belladonna, and physostigma, antagonize the action of nux vomica and its preparations.

Nux vomica is a stimulant to the spinal cord, having direct influence over the motor system of nerves; its toxic effects are spasmodic contraction of the muscles of the trunk, producing death by suspending respiration. In medical doses, however, it is a valuable remedy in cases of paralysis, where there is no congestion or inflammation of the nerve centers, or where there is not disease of the nerve itself, or atrophy of the muscle. Where there is a lesion of the nerve centers, that must first be corrected before nux vomica or its salts can do any good; and if given where there is congestion or inflammation of the spinal centers, it will always do mischief.

Nux vomica has no effect upon the intellectual functions, nor does it affect the cardiac nerves so as to accelerate the heart's action, as general stimulants do. It increases irritability and sensibility, but not to the same extent as general stim-It is a special stimulant to the motor and sensory nervous system; its direct action upon the spinal cord exalts reflex action, which is derived from the spinal center, and may, perhaps, act more or less upon the ganglionic nerves supplied to the stomach. In many cases of debility and asthenia, where there is impaired innervation, nux vomica may be given with confidence. Where there is no congestion of the nerve centers it excites the white nerve tissue so as to enable it to conduct the nerve force generated by the gray nerve tissue. Hence nux vomica is indicated in those diseases where there is a deficiency or an irregular supply of nerve power dependent upon a diseased condition of the conducting power of the nerves, and not in diseases of congestion or inflammation of the nerve centers.

In those cases of fever where the digestive and assimilating organs are depressed, either by congestion of the organs themselves, or by the depressing effects of malaria upon the nerve centers, nux vomica will act promptly. It gives tone, and stimulates these organs to overcome the sedative influence of the malaria. It is valuable in many cases of typhus and typhoid fever, where, from depression of the secretions and excretions. great prostration exists, produced by the overpowering sedative accumulation of the poison upon the system. In constipation of the bowels, caused by inertia, it acts very promptly. For this purpose I frequently combine it with aloes and podophyllin. In spermatorrhea, from exhausted nerve power, it is a valuable remedy. In congestion of the liver, with atony of function, nux vomica is one of our best remedies. In cases of cholera morbus and diarrhea, attended with debility, this is a very potent remedy. I use the saturated tincture, made by adding eight ounces to one pint of alcohol (76°). Dose, from one to five drops.

Æsculus Hippocastanum-Horse Chestnut.

A stimulant to the capillary vessels of the rectum. This is a lofty forest tree, with numerous, spreading branches, covered with rough, brown bark. The wood is white, and soon decays. Its leaves are large, and on long foot stalks, and composed of seven leaflets, arising from a common center, the middle one being the largest; and of a spathulate form, acuminate, serrate, much varied, and of a bright green color. The flowers are in thyrsoid racemes or panicles, at the extremity of the branches. The calvx is pale green, five-toothed, and spreading. The corolla is formed of five petals, which are irregular, unequal, spreading, inserted into the calyx by narrow claws, waved at the edges, and of a white color, marked below with a yellowish-red spot. The stamens are seven, with awl-shaped filaments, supporting reddish, oblong, double an-The ovary is roundish, and furnished with a short style and a pointed stigma. The fruit is prickly, coriaceous, roundish, three-celled, and usually contains two seeds. These seeds are exalbuminous, with a brown, shining testa, and a large, paler hilum, or eye.

Medical Uses.—In excessive doses, asculus produces vertigo, followed by stupefaction and coma. Its specific tendency, in medical doses, is to the rectum. It has proven a remedy for hæmorrhoids, when they protrude, or when internal, and of a purple color, hard and very sore, and attended with a burning and aching sensation. When piles are attended also with a sensation of fullness, a desire to strain, and looseness of the bowels, this remedy will prove curative. It seems to act directly upon the veins of the rectum, contracting their fibre so as to remove their abnormal enlargement. The dose is from three to five drops, three or four times a day. It is not well known.

Æsculus Glabra—Buckeye.

The æsculus glabra (Ohio Buckeye) is also a large forest tree, growing abundantly in some of the Northern States, especially in Ohio, and along the Ohio river. Its leaves are smaller than the A. hippocastanum, opposite, pointing outward; leaflets fine, with a serrated edge, and straight veins, like the common chestnut leaf. It differs from A. pavia in having the fruit curved with prickles when young. The fruit is an active poison, in large quantities. The leaves, bark, and rind of the fruit, are also toxic in their effect. But, in proper doses, they are all medical.

Medical Effects.—This article is capable of a wide range of action. Its specific tendency, however, is to the liver and portal system, and in its action upon the portal circulation, it resembles nux vomica, aloes, podophyllin, collinsonia, and also the horse chestnut, but is more active than the latter. It is a valuable remedy for painful hemorrhoids, connected with, or caused by, constipation and portal torpor. It has also an effect upon the cerebro-spinal system very similar to nux vomica, in over-doses. It produces wry-neck, vertigo, vomiting, opisthotonos, tympanites, stupor, and in very large doses, coma and death. I have seen cattle poisoned with the A. pavia, which doubtless possesses similar properties to the other species. I have used the tincture of the seed of A. pavia in hemorrhoids, and it seemed to produce the same effects as the A. glabra and A. hippocastanum upon the system; that is, to strengthen the coats of the capillary vessels of the rectum, lessening their caliber, and thus removing the hamorrhoids in due time. usually use an ointment of the extract of pipsissawa, made by adding equal parts of the extract to glycerine. Sometimes I have applied the persulphate of iron to the tumors. of the æsculus glabra is from three to six drops, every three or four hours.

Ignatia Amara—St. Ignatius Bean.

The preparation of ignatia most commonly used is the tincture, made by adding eight ounces of the drug to a pint of alcohol. The dose is from one to five drops.

Ignatia acts through the cerebro-spinal center, but especially through the spinal center. It contains both strychnia and brucia. This article, like nux vomica, has the power to diminish the irritability of the cerebro-spinal axis, when given in small or medical doses, and to increase the irritability when large doses of the drug are taken. This is another instance of a dual action of medicine. Its toxic action is similar to that of nux vomica. It is a direct remedy for indigestion from emotional disturbances, as grief or fright. It is beneficial in sleeplessness, especially from grief. It is an active remedy in cases of epileptiform convulsions of females and children. In hysteria, with mental disturbances, ignatia will do good service. It is a good remedy in hyperæsthesia of the various tissues. In cases of dyspepsia, with nervous depression, it has proven a valuable remedy with me. In convulsions of children, from intestinal irritation, ignatia is a curative remedy. It has more direct action upon the medulla and upper part of the spinal cord; and is always most beneficial when mental depression is associated with the disease. In such conditions, the dose must be small, say from one to five drops, and for children in proportion.

Rhus Toxicodendron-Poison Oak.

Physiological Effects.—Physiologically, rhus toxicodendron acts much like rhus venenata, but its local effects are much milder than those of the latter. When persons who are susceptible to the poisonous action of this plant, touch it, or when the exhalations come in contact with the skin while it is wet, the skin soon inflames, and a vesicular eruption appears, with intense itching. This eruption may spread rapidly over the body, in which case there will be considerable fever, with

pain in the back and joints, like that of rheumatism. The eruption may attack the eyes, when there will be conjunctivitis. It may also inflame the mucous membranes of the mouth and throat. There may be nausea, vomiting, vertigo and stupefaction. There are also colicky pains in the abdomen, worse at night, and aggravated by food or drink. Diarrhea often occurs, with tenesmus and bloody stools, together with diuresis, bloody urine, or complete retention of the urine. In some cases, the fever may run so high that there will be delirium, and it may be typhoid in type. The pains in the joints are intensified by heat or rest. The fibrous structures are the direct seat of its selective action. There may be experienced a sense of numbness in the lower extremities. Death has not occurred in any case of poisoning with this plant, as far as I know; the effects usually pass off in ten to fifteen days, but may return again the following year at the same date, and recur in this way for several years.

The action of rhus toxicodendron upon the nerves is similar to that of nux vomica, but is not so powerful. It may be given in all diseases where morbid influence tends to the skin, as erysipelas, or other diseases characterized by deep-seated, burning pain, and bright redness. It is valuable in diseases caused by zymotic poisons, as typhus and typhoid fever. In those cases of deficient innervation characterized by a frequent, small pulse, redness of mucous membranes, sordes on the teeth and tongue, tympanites, and acrid discharges from the bowels, rhus toxicodendron manifests its specific influence over the nervous system. It is indicated in that condition of the system that gives rise to old ragged ulcers, with red, glistening edges, and acrid discharges. Its curative impressions would seem to be exerted through the nervous system, by giving better innervation to the skin and mucous membranes. Regarding its action thus, there are many skin diseases in which it would doubtless prove very efficient. I think it will prove valuable in ozena and ulceration of the ears, and all that

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class of skin diseases characterized by ichorous discharges, or by rapid decomposition of tissues.

The tincture is the most convenient and reliable preparation, and may be made of the green or freshly dried leaves. I think the green leaves the best, as its medical virtues seem to be volatile. Add eight ounces to one pint of alcohol (76°). Let it stand ten days, and percolate. Dose, from one to five drops, three times a day. The R. venenatum and R. pumilum are also very active.

Ergota—Secale Cornutum—The Ergot of Rye.

Physiological Effects.—In large doses, ergot is an excitomotor and a hæmostatic, especially influencing the spinal cord, the circulation, the respiration, intestinal and uterine muscular fibers. Its profound action is an artificial anæmia, and tetanic contraction of the unstriped muscular fiber. Its phenomena are divided into two forms, viz.: Acute and Chronic Ergotism, according as the ergot is given in large doses, or in small ones for some time.

Acute ergotism is attended with gastro-intestinal irritation, nausea, and vomiting, gastralgia, colic, thirst, difficult micturition and sometimes purging. In large doses, it slows the heart, raises arterial tension, dilates the pupils, produces pallor, vertigo and frontal headache.

It produces arterial anemia, but it is a question whether the anemia is the result of contraction of the arterioles through the direct action on their muscular coats, or by a central stimulation of the vaso-motor system of nerves, or by producing an active dilatation of the venous system, by which the arterial system is drained.

It powerfully stimulates the contraction of the unstriped muscular fiber, especially the sphincters and the muscles of the uterus, causing continuous labor pains and tonic contraction of the sphincter vesice, followed by difficult micturition, or total suspension of urination for a time. It produces cerebral and spinal anæmia, tetanic spasms and convulsions.

Chronic ergotism occurs in two forms: the convulsive form, and the gangrenous form. The convulsions are tetanoid spasms of the voluntary muscles, the uterus, intestinal fibers, and the muscles of respiration, ending in coma, and finally death by asphyxia. The gangrenous form begins with coldness and numbness of the limbs, formication of the skin over the entire body, loss of sensibility and the special senses, ichor, followed by either moist or dry gangrene of the lower limbs, or other parts. In some cases epileptiform convulsions, coma and death follow the gangrene. None of the constituents of ergot represent the crude drug in its physiological actions; sclerotic acid and ergotina most nearly approach it.

Ergot is a special stimulant to the muscles of the uterus, but does not influence the other nerves of the body in any very marked degree. When the parturient effort is retarded, from atony or debility of the uterine muscles, and when there is no organic obstruction to parturition, ergot acts as positively as any remedy in the materia medica. This fact I have demonstrated in a great many cases. It is also a very positive remedy for uterine hæmorrhage. This result is accomplished by simply contracting the relaxed uterus, thereby closing the mouths of the bleeding vessels. In overdoses, ergot is liable to produce toxic effects upon the brain, such as narcotism and syncope. It seems to direct its action mainly to that part of the ganglionic nervous system that is distributed to the muscles of the uterus. It seems to have but little, if any, impression upon the nerves of the heart. It is truly a local stimulant to the uterus. It is thought by some writers that it influences that part of the vegetative system of nerves which presides over the circulation of the capillary system, and may be given in cases of congestion. On this point I am not prepared to speak. In my hands it has manifested its power mostly upon the uterus. I have seen it stated that it would not affect the unimpregnated uterus: but that is a mistake. I have recently given it in several cases of hemorrhage in the unimpregnated uterus, where it produced violent contractions, and thereby checked menorrhagia that I had failed to check by the most potent astringents long continued.

I have frequently noticed complaints of physicians about the uncertainty of action of ergot, and I am fully satisfied that the cause of failure was the worthlessness of the article used. Age very much impairs all remedies, especially this one. Then again, it has often been manufactured from a poor article: then the menstruum used is often an improper one. Alcohol, not wine, is the proper menstruum. And again, druggers have not used enough of the ergot in the preparation of the tincture. It should be made as strong as alcohol will make it, as the medical virtue chiefly, if not entirely, consists in the oil contained in it; and for this reason, it should always be manufactured while it is fresh. Add eight ounces of freshly crushed ergot to one pint of alcohol (76°). Dose, from thirty drops to one drachm, repeated every fifteen minutes in cases of torpid labor, until it acts, and every hour or two in cases of excessive menstruation. In post partum hæmorrhage it may be given every ten minutes, until it produces contraction of the uterus, which will generally arrest the hæmorrhage; if it does not, it should be alternated with the oil of erigeron. Many other articles are used in place of ergot, but are inferior to it: betin is said to act similarly.

Echinacea Angustifolia.

This plant has a slender, glabrous, terete stem, with linear-lanceolate, entire leaves, tapering into long petioles; the rays are dark-red. The stem is necked above, and hispid. The leaves are lanceolate at the bottom of the plant, hispid, entire, and three-nerved. It grows from one to three feet high, and is found in many parts of the United States, growing on rocky or sandy land. The root is black on the outside, bluish, or

purple on the inside when fresh, and is from four to six inches long, and from half to three-quarters of an inch in diameter. It has a pungent, burning taste, much like that of xanthoxylum fraxineum.

It was presented to my notice by Dr. H. C. F. Meyer of Pawnee City, Nebraska, as a general alterative and stimulant. And I have tested it as a stimulant on myself, and find that a single dose of one drachm will raise my pulse six or eight beats per minute in a short time. I have the assurance of Dr. Meyer, that this remedy will cure the bites of snakes with great certainty. And he recommends it very highly in the bites of rabid dogs. I have used the tincture (eight ounces of the root to the pint of alcohol) in three cases of bites of rabid dogs, and with perfect success up to this time. I have also tested it in two or three cases of old ulcers on the legs. Two of them soon yielded to the remedy; one I have not yet cured, but it is improving. As an alterative, I tried it, both externally and internally with success, in a case of ozena, in which the floor of the palate was eaten through, and in which the patient was greatly emaciated. I am now testing it in syphilis, scrofula, and chronic catarrh, and so far it promises well.

CHAPTER VII.

Narcotics and Anæsthetics.

THE action of narcotics is rather intermediate between stimulants and sedatives. They are neurotic medicines; that is, they pass into the blood, and thence to the nerve centers, and they first seem to exalt nerve force and then depress it. And they have a special action upon the cerebrum, impressing the mind more or less. They may be divided into three orders: Inebriants, Deliriants, and Somniferants. Deliriants exert the least, inebriants the most stimulation upon the brain of any of this class. Narcotics finally depress nerve influence. Inebriants first impair the functions of the mind, then derange it; somniferants lull or extinguish the functions of the mind for a time; but deliriants excite first, then lead them astray. Narcotics, in large doses, produce insensibility—coma, and gradually impede respiration until it is finally suspended in death. Sedatives produce death, not by coma, but by syncope, or by suspension of the heart's action. It is believed by some writers that the comatose condition following the use of narcotics, is the result of accumulated carbonic acid in the blood from the deficient respiratory power, produced by the effects of the narcotic. In the present state of therapeutic science, we are not well satisfied of the precise operation of narcotics.

I. INEBRIANTS.

Alcohol may be taken as the type of inebriants. It approaches very nearly to the stimulant type, and in moderate doses is a stimulant; it has already been considered in that class. In moderate doses it is an exhilarant and stimulant; it

quickens the pulse, and exalts the mental manifestations. But when given too frequently, or in too large doses, it stimulates the heart more powerfully for a time, but soon impairs the mind, and to some extent enfeebles the heart's action. pushed too far, alcohol not only impairs the mind and the heart's action, but impairs muscular power; that is, co-ordinate action is impaired, and finally lost. The inebriation may be carried so far as to result in coma and death. Alcohol and ether are the most marked exhilarants; tobacco and lobelia the Alcohol, like camphor, Indian hemp, ether and chloroform, produces stupefaction as its secondary effect. Ether and chloroform have the power of extinguishing the sense of feeling, and hence are used, by inhalation, as anæsthetics, in surgery, etc. Alcohol is used in medicine as a solvent of the medical principles of plants, and for its stimulating property. The other articles of this class are not much used as inebriants, only by those nonprofessional persons that form a habit.

Æther Sulphuricus—Sulphuric Ether.

Sulphuric ether, inhaled, is an anæsthetic; given internally, it is an antispasmodic and mild stimulant, in moderate doses; and may be used as such where indicated. As an antispasmodic, I have used it in cramps of the bowels and stomach, in colic, and palpitation of the heart, from nerve depression. I have used it with the tincture of the seed of lobelia, or a tincture of lobelia seed made in ether, in asthma, with good effect. When combined with the oil of turpentine, it is very prompt to relieve the spasmodic action of the ureters in the passage of calculi, or the spasm of the gall ducts in the passage of gall stones.

As an anæsthetic, lethon is the best; this is ether, purified. For the production of anæsthesia ether is regarded by many surgeons as preferable to chloroform. It appears from the most reliable statistics that death has followed the inhalation of

chloroform oftener than that of ether. The danger of either chloroform or ether can be very much lessened by allowing the patient to breathe a portion of atmospheric air with the This can be done by allowing a small space to intervene between the sponge or cloth holding the ether and the mouth of the patient. I have used ether and chloroform in obstetrical cases, where turning was necessary. And I have often used it where I had to deliver by the forceps. I have used it, and also chloroform, in cases of puerperal convulsions, and have been successful in controlling them very promptly with both in most cases In neuralgia of the stomach, I have found thirty to sixty drops of ether a very certain relief. I have often resorted to it in my own case, and have found it very positive in its action. I have noticed the anæsthetic properties of ether under the head of inebriants, because it is this property that produces the anæsthetic effect upon the sensory nerves. Purified ether should be used when it can be procured.

Chloroformum—Chloroform.

Chloroform, like ether, when inhaled, exerts its influence upon the cerebral center, preventing it from receiving impressions, which constitutes anæsthesia. When carried too far, chloroform so influences the spinal center that it arrests respiration and thereby produces death. It is, as said before, more liable to do this than ether. It also, administered by the mouth, in doses of ten to sixty drops, well diluted, is very successful in allaying convulsions, colic, etc. It is said to be valuable in arresting the formation of biliary calculi.

Cocaina—Cocaine.

Cocaine is a crystalline alkaloid ($C_{17}N_{21}NO_4$) from erythroxylon coca. Cocaine hydrochloras ($C_{17}H_{21}NO_4Cl.$), or the hydrochlorate of cocaine, is used in aqueous solutions of two

¹The greater mortality is on account of the overwhelming difference in use, and depends upon misdirection.—F.

to five per cent., as a local anæsthetic to mucous surfaces or by subcutaneous injection. If given internally, the dose is one eighth of a grain to two grains. Cocainæ oleas—oleate of cocaine, a three per cent. solution in oleic acid, is used externally to allay pruritus, or itching.

Physiological Effects.—Upon man, the action of coca resembles that of cannabis indica, first stimulating the brain, and then producing an after, narcotic, effect. In large doses, it resembles caffeine in its effect on the nerve-centers, and atropine in its effects on the respiration, circulation, the pupils, bowels, salivary and sweat glands. In full doses it causes intense nausea, and greatly increased flow of urine. It increases the sexual appetite, the action of the heart and the respiration, and contracts the capillaries of the skin, producing pallor, followed by profuse perspiration, dryness of the mouth, and dilatation of the pupils. It relieves the sense of fatigue, and prevents sleep.

Cocaine is applicable as a local anæsthetic in operations upon the eye. Applied to the tongue it destroys the taste and the susceptibility to impression, even of the prick of a pin. It does not act promptly through the sound skin, but injected hypodermically near the muco-cutaneous junction, it causes anæsthesia over a small space. Local congestion may follow the excessive, or too long-continued use of cocaine. Smoking the leaves of the erythroxylon coca is beneficial in hay-fever, and irritable coughs. It relieves the pain of using the catheter.

Camphora—Camphor.

Camphor is from the Laurus Camphora—a native of the East Indies. It is soluble in alcohol, ether, acetic acid, and the fixed and volatile oils.

Besides its inebriating power, camphor is a sedative, anodyne, antispasmodic, and diaphoretic. It is often used to allay nervous excitement and irritability; to subdue pain, arrest

spasm, and sometimes to produce sleep. When locally applied, its anæsthetic effects make it valuable in gout, rheumatism, neuralgia, after-pains, or painful menstruation. It is often combined with opium, and given in chordee, hysteria, and painful affections of the urinary organs; but in large doses it is a very powerful inebriant. It is valuable as a local anæsthetic, and for that purpose it is often used in painful affections in the form of tincture or in liniments. I have used it much for its diaphoretic effects, combined with opium and ipecacuanha (see formula in King's Dispensatory), with the best results, in many inflammatory affections, after the pulse had been moderated with arterial sedatives. In pneumonia, after the pulse is brought down and there still remains pain in the thoracic region, the above combination answers a good purpose. It will relieve the pain, and open the skin, and render the respiratory effort much easier. The dose is from three to five grains every three hours.

Cannabis Sativa, Cannabis Indica-Indian Hemp.

Physiological Effects.—The cannabis indica, like opium, has an exciting and sedative effect upon the brain and nervous system. In very large doses, it stimulates the brain into pleasant exhilaration, before it produces sleep, but this primary effect is more lasting than that produced by opium, and the sleep produced by cannabis is usually disturbed by dreams and spectral illusions. In some persons, there is a peculiar state of consciousness, sometimes resembling partial catalepsy. In some cases the sensory nerves are affected, and there will be numbness, tingling, cutaneous anæsthesia, and diminution of the muscular sense. The circulation is increased during the action of this drug, which is due to the nervous excitement. The peculiar nervous phenomena vary very much according to the temperament of the subject. With some, the sensations are very pleasurable; often it produces a peculiar hallucination of mind, and beautiful visions float before the enraptured

subject, who revels in an ecstatic, unreal, beatific state. The venereal appetites are excited, and then again the patient may exhibit a mirthful mood. Sometimes where large doses have been taken, a kind of oblivious state may take possession of the subject, or he may be thrown into a trance-like state of some duration. Some experience a feeling of great hilarity, or buoyancy beyond all trouble.

Sometimes an indefinable foreboding fear of impending death creeps over the subject, as this beatific revery is passing off, and a strange sensation is experienced in the limbs. They feel as if they were foreign to the patient's body, and as though they were waxen pillars beneath his body. The patient may become oblivious to all external objects, may entirely lose his power of measuring time, and seconds may seem to him as hours, or days, and hours may seem infinite to him. In some subjects, the Indian hemp will produce convulsions or local spasms, and in others catalepsy. After a time, if the doses have been large, the patient becomes very drowsy, and falls asleep.

Medical Effects.—There is no uniformity in the strength of the various extracts found in the market, hence the varied opinions in regard to its medical and physiological effects. There is doubtless some difference in the susceptibility of individuals to its action, but this does not account for the very great variance in the clinical results observed in the action of this drug. I make a saturated tincture of the extract. I find that five or six drops of this tincture every two or three hours until it produces the desired result is a dose for ordinary purposes. In tetanus, it can be given in larger doses. For uterine hæmorrhage, five drops every two hours, has served me admirably. It does not produce toxic effects; although it produces alarming phenomena, they terminate without fatal results.

The cannabis sativa in large doses is an inebriant, and, like the preceding articles of this class, when pushed too far, will produce death by arrest of function. Its influence over the spinal centers renders it a valuable remedy in some diseases of the urinary organs. It is very valuable in spermatorrhea. It also is valuable in chordee, irritability of the bladder, urethra and kidneys. It is also a good remedy in gonorrhea, after the more active inflammatory symptoms have been subdued by other appropriate remedies. It was vaunted very highly some years ago as a remedy in chronic bronchitis, but subsequent trials did not prove it to be any better than other articles that had been used to quiet irritability of the nervous system. Like all the articles of its class, it possesses anæsthetic properties, by a direct affinity for the spinal centers, but it is feeble compared to others of this class. It is valuable in spermatorrhea, especially where there is great irritability. It is equally appropriate in gonorrhea in irritable constitutions.

It is best when made from the fresh plant, but we cannot get that; but we can get a crude extract called churrus, imported from India.

II. SOPORIFICS.

We come now to consider soporifics, a very important division of neurotic medicines. We have seen that inebriants very powerfully affect the intellectual faculties, and the powers even of volition and sensation, by which mind and body are connected; and they affect the five senses—that is, feeling, seeing, hearing, smelling, and tasting, when pushed too far. Inebriants ordinarily impair the mind, but do not entirely extinguish volition or the special senses. Soporifics differ from inebriants in this way: in sleep the mind may remain active, but it is left alone, dreaming and controlled by physical ties. In this condition the functions of the mind, volition, sensation, sight, hearing, smell and taste are suspended in sleep.

It appears that inebriants affect the mind and the natural functions; soporifics, however, may leave the mind untouched,

but subdue the functions of the mind for the time. Sleep differs also from inebriation or delirium, in that it is liable to be suddenly interrupted by a shock: but inebriation or delirium cannot thus be suddenly suspended or interrupted. Pain prevents the sleep, unless the soporific possesses also an anodyne property that will subdue pain. Many soporifics possess this anodyne or anæsthetic property in greater or less degree, as opium.

Hypnotism.—Hypnotism is much like that electro-biologized or mesmerie state, which some persons have the power to induce, by a peculiar subtle force not yet well understood. Hypnotics are a class of drugs which promote sleep, but they are very different in their general action, and should not be prescribed at random.

Opium and morphia are often prescribed where insomnia is caused by pain, and their tendency to congest the brain, and their unpleasant after-effects may be counteracted by prescribing belladonna with the opium or morphia. This combination also prevents the dyspnœa which opium produces.

A mixture of the bromide of lithia, soda, or ammonia, with atropia, hyoscyamus, and chloral hydrate, will produce sleep and relieve pain in a similar manner. In all grave lung affections, opium is contra-indicated, as it is liable to produce dyspnæa. Then, the prolonged use of opium is always followed by impairment of digestion, liver complications, and a host of evils. The elixir of opium is the least liable to unpleasant effects. Codeia is also an extract derived from opium, which induces sleep, but in large doses, produces spasms.

Large doses of hyoscyamus often induce sleep, but used alone, in large doses, produce unpleasant effects. It may be combined with other hypnotics.

Hyoscyamine may be used in small doses, hypodermically, with good effect in many cases. The hydrobromate of hyoscine is the salt of an alkaloid derived from hyoscyamus, and is

very active, the two hundreth of a grain producing very decided effects. It is valuable in acute mania, melancholia, and insomnia from the excessive use of opium, and also in restlessness accompanying mental diseases. The dose, at first, should not exceed the one hundred and twentieth of a grain.

Chloral hydrate in doses of ten to fifteen grains, induces sleep which is very much like natural slumber, and does not produce the disagreeable effects of opium. It is a splendid soporific, and depletes the brain instead of congesting it as opium does. If anodyne effects are desired, opium may be alternated with it, which will produce sleep and relieve pain. But chloral weakens the heart where that organ is diseased, and should not be given alone in such cases. Here it may be combined with hyoscyamus or cannabis indica. The chloral is the remedy in insomnia in lockjaw, as it controls the spasms and also produces sleep. Chloral is not suitable where the stomach is inflamed, as it will be rejected, and if not, it is too irritating. It is a good antidote for over-doses of nux vomica and strychnine, after emesis or the emptying the stomach with the stomach pump.

Butyl chloral hydrate (croton chloral hydrate), in smaller doses than is directed to be given of chloral hydrate, produces some anodyne effect, which chloral does not. It relieves sick-headache and facial neuralgia, even where other anodynes fail. It does not weaken the heart, hence may be used where the heart is affected.

The bromides have feeble hypnotic power, but most of them depress the heart, and consequently, must be used with care and caution.

The bromide of lithia or soda may be combined with chloral hydrate or with opium.

Paraldehyde is a good hypnotic, without after ill-effects. It does not affect the heart or the respirations, but is disagreeable in taste.

Urethrane is a hypnotic in doses of five to seven grains, and does not affect the heart or the respiration, nor does it produce other unpleasant effects upon the general system.

Hypnone is a new, but very powerful sleep-producer. It does not affect the heart or the respiration, but may cause subsequent headache. Dose, three or four drops dissolved in ether, and given in a capsule.

Jamaica dogwood—Piscidia erythrina, fluid extract or the normal tincture, in doses of ten to fifteen drops, produces refreshing sleep, from which the patient awakes refreshed as from natural sleep. It acts like a charm in most cases, and should take the place of opium as a soporific.

Papaver Somniferum-Opium.

Physiological Effects.—Opium acts through the cerebrospinal nervous system. It produces very intense congestion of the brain, and finally coma, and when pushed, it then produces death. Its antidotes are belladonna and strong coffee, walking the patient, galvanism, etc., and also artificial respiration. At first, opium excites the brain, stimulating the intellectual faculties, and the imagination becomes vivid. But very soon these effects are succeeded by drowsiness and a deadening effect, and deep sleep sets in, which continues in accordance with the dose taken. When the patient awakes, headache, dryness of the mouth, suspended secretion of the liver, gastric glands, and the pancreatic glands, ensues, and want of digestive power, with nausea and vomiting, takes place, with general bad feeling.

It is believed that small doses of opium produce sleep by so contracting the cerebral vessels, as to imitate natural sleep, but it is evident that large doses produce venous congestion, and finally coma, and even death. The resulting contraction of the pupil is probably central in its origin. Opium diminishes the conductivity and irritability of the sensory nerves, consequently, the patient is less susceptible to pain for the OPIUM. 85

time. Opium, at first slightly increases the reflex functions of the spinal cord, but finally they become diminished. The respiratory center is first lessened in power, and finally paralyzed. It may also cause convulsions in children.

It first excites the sympathetic system of nerves, then depresses it. Upon the heart, its action, at first, is stimulating, then depressing. Its influence over the cardiac inhibitory nerves, causes the pulse to become fuller and firmer, and raises arterial tension. When a lethal dose has been taken, however, the pulse becomes feeble, rapid, and irregular before death takes place. The paralyzing effect of opium upon the respiratory muscles causes the breathing to become slower and slower. It raises the temperature at first, but very soon it falls, when perspiration ensues. It constipates the bowels, suspends digestion, locks up the hepatic, gastric, and pancreatic secretions, and doubtless also prevents assimilation.

A lethal dose of opium, or morphia, causes but transient excitement, the stage of narcosis soon takes place, and the vital functions are sometimes very abruptly suspended. A state of insensibility takes place, with either a rapid, feeble pulse, or a slow and feeble pulse, with slow respirations, or stertorous breathing, shrunken, pallid face, moist skin, and contracted pupils, profound unconsciousness, with relaxed muscles, and abolition of reflex movement. This state resembles the narcosis of alcohol, or that from cerebral hæmorrhage; it also resembles uraemic coma. The history of the case must always be considered. Half a grain of morphia may poison.

Opium stands at the head of the list of the soporifics, and has been used long and much; yet there are thousands using it much out of its place. There are few remedies that have produced more fatality than this, especially among children. The young mother must be armed with this mighty weapon ere she enter the nursery. The first cry of helpless innocence calls forth this potent pain-relieving and sleep-producing po-

tion in the form of Mrs. Winslow's Soothing Syrup, which is morphia, accomplishing the fond mother's desire, but often, too, putting the little victim into the land of lasting sleep. Why this unexpected action of this favorite drug? I will endeavor to point out this unexpected result, or rather the cause of the unfortunate action of this old and long used and much abused favorite of mothers and illiterate pretenders in medicine.

Although opium, given under proper conditions of the system (given otherwise it is very often fatal), may produce the happiest results, yet it is extremely dangerous under certain other conditions of the system. If the skin is dry and hot, the pulse hard, small and quick, the mouth dry, the pupils contracted, the eyes dull and heavy, the face flushed, with headache, or determination to the brain, and an expressionless countenance, opium is contra-indicated. Often the fatal results from the use of this drug are attributable to the fact that the system was not in a condition to receive it; consequently, if given under such circumstances, the result will be dangerous, if not fatal. In the early part of my professional career, I was called to treat a lady for dysentery accompanied by the above symptoms, and as I had not found any notice in any work of the contra-indications for opium, I gave her a moderate dose of morphia. As soon as it could take effect, she was wildly delirious, and remained so until the effects of the drug passed off and left the brain uninfluenced. I was called in consultation with a routine physician in a case of typhoid fever, with typhomania, and the above conditions otherwise existing. The first thing he suggested was a full, heavy dose of his favorite remedy, morphia. I objected, but to no purpose, he gave it anyhow, and the patient, a young lady about twenty years of age, died as the morphia took effect. When the skin is moist, the pupils dilated, the face natural or pale, the eyes natural, and no congestion of the brain, then opium may be given with benefit and safety. Opium and all its salts, in

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medical doses, are cerebral stimulants, and from this action comes their soporific tendency and anæsthetic power.

One great use of opium is to relieve pain; hence its so common use, not only by the profession, but by non-professionals. This power it possesses in a very marked degree. But in addition to its very prompt power to alleviate the agony of a torturing nerve, it possesses yet another property often called for by the sick, as well as those who are not sick: that property is its inebriating influence upon the brain, by which it suspends the active functions of the mind and sweetly lulls to sleep. If morbid vigilance arises from deficient circulation to the brain, then opium may be given with safety and certainty of effect; but it should never be given where there is congestion of the brain, or a tendency thereto. Nor should it be given in lung disease, where respiration is feeble, nor where the cough is dry and hard, and expectoration difficult and scanty. Nor should it be given where the urine is scanty and high-colored.

Opium combined with ipecacuanha and camphor, in the form of the "Compound Powder" of King's Dispensatory, increases its diaphoretic effects, and in many cases increases its anodyne properties. The aqueous extract is much safer than the crude opium or morphia. It possesses the anodyne, sedative and antispasmodic effects of opium without being so liable to produce constipation. This extract is made by adding one and one-fourth ounces to three-fourths of a pint of water. Let it stand three days, then mash the opium well in a mortar, in a small quantity of the water, and continue adding the water and stirring it in the mortar; then percolate through a funnel with the neck corked with a bit of sponge. Let the water be passed through the opium several times, then add one-third of a pint of alcohol to preserve it. The dose will be the same as the tincture of opium, twenty to twenty-five drops, repeated every hour

¹ Maximum for adults .- F.

until it produces the desired effect. I seldom use any other but this and the compound camphorated tincture. The compound tincture may be made by adding one ounce of ipecac rad., one ounce of serpentaria, one-half ounce of saffron, one-half ounce of gum camphor, two drachms of opium to one pint of proof spirits; digest for twelve days, and filter. The dose is from one to two drachms, repeated as may be required.

The effects of all preparations of opium generally last three or four hours; hence, when given in full doses, they need not be repeated.

Take pulverized opium in fine powder, ten grains; camphor in powder, two scruples; ipecacuanha in powder, one scruple; cream of tartar, or sulphate or nitrate of potash, eight scruples. Mix thoroughly in a mortar. This is a good anodyne and diaphoretic, very useful in rheumatism, dysentery, pneumonia, pleurisy, and the latter stage of many febrile diseases. It relieves pain, allays irritation, promotes perspiration, and disposes to sleep. The dose is from three to five grains, every three or four hours, or in an urgent case ten grains may be given at one dose.

Svapnia—Purified Opium.—Svapnia is opium purified from all inert or impure matters, as vegetable fiber, thebaine, and narcotine. There have been many attempts to purify opium, remove its deleterious properties, and reserve its therapeutic constituents, but most of them were not as successful as might be desired; McMun's elixir of opium came near that very desirable object, but did not entirely accomplish the end in view. Frederick Stearns, a chemist at Detroit, is preparing svapnia; and if it should prove a success, he will accomplish much for suffering humanity, and confer a lasting favor upon the medical profession. It purports to contain the anodyne and soporific properties of opium completely, which reside in the morphia, narceia, and codeia. It is represented as being uniform in

¹ I greatly prefer ten to twenty-drop doses, carefully watching effects.—F.

strength, which is not the case with morphine. The conditions of the system are very numerous where the soothing effects of opium are desired, but its ill effects contra-indicate its use. If the svapnia be what it is represented, it will prove a desideratum indeed. I cannot speak of it positively, as I have not had an opportunity of testing it. The medium dose is one grain, when pure. It is similar in action to the aqueous extract in a fluid form.

Papaverin¹ is the aqueous extract of the poppy, or of opium, and is quite different in its effects from opium or morphine. This article is not often manufactured in the solid or powdered form, but when it is, it is quite convenient, and possesses the calmative and sedative effects of opium without its constipating and other objectionable qualities. The papaverin is similar in its therapeutic effects to McMun's elixir of opium. In all cases where a potent and prompt nervine is desired, and we wish to avoid constipation, the papaverin is the sine quanon; it is more certain in its action than hyoscyamus, or any other narcotic that I have tried.

The praises of opium have long since been sung, and I shall not here repeat the oft-rehearsed laudations, but merely introduce this as a preparation that is exactly called for in some cases. The instances are numerous where the calmative properties of opium are desired without its constipating effects, as in neuralgia, colic, rheumatism and gout, and many other painful affections. This preparation does not leave those very unpleasant effects that follow opium, as headache, sick stomach, restlessness, delirium, etc. This article is usually prepared in fluid form, but is equally available in a solid form. The dose is from one-eighth to one-sixth of a grain.

Piscidia Erythrina-Jamaica Dogwood.

This very promising soporific was introduced recently by Parke, Davis & Co., of Detroit, Mich., from the West Indies.

¹ Svapnia made by Stearns, of Detroit, is similar to the above.

As a soporific, it is a complete substitute for opium, without the after-ill effects of the opium. It produces refreshing sleep, from which the patient awakes without any headache or other unpleasant effects.

It relieves pain quickly, even in toothache, and other painful affections. In doses of thirty to sixty drops, it produces a sensation of heat internally, which finally extends to the surface, and is followed by a profuse perspiration, and then profound sleep for twelve hours. It is a splendid remedy for writer's cramp, muscular cramps, cholera, cholera morbus, and tetanus. It is one of our best soporifics, and anodynes, resembling opium in these peculiar effects, but it does not produce the disagreeable languor, depression, and arrest of the secretions which almost always follow the use of opium in full doses. It controls pain of reflex origin very promptly, especially when accompanied with exaggerated phenomena, excessive restlessness, and insomnia. It is a precious remedy in cranial neuralgia, otalgia, odontalgia, dysmonorrhœa, ovarian and uterine neuralgia, rheumatism, sciatica, and all nervous pains about the body or limbs. That irritable condition that attends neryous cough, bronchitis, asthma, chorea, tetanus, etc., are all benefited by this drug. The one-tenth dilution is beneficial in irritable ulcers, and in pruritus. The dose is from ten to fifteen drops of the fluid extract.

Lactucarium-Extract of Lettuce.

Lactucarium resembles opium in its action, but is much feebler and less certain. It may be given as a substitute for opium in cases of idiosyncrasy, where opium disagrees with the patient, as it is not so liable to produce constipation and other evil effects as opium. It is not much used. The dose of the essential tincture is half a drachm to one drachm; of the solid extract, one to two grains; and of the fluid extract, half a drachm to one drachm.

Humulus Lupulus-Hops.

Hops or the extract, lupulin, manifest the anæsthetic qualities of opium, while at the same time they produce a tonic effect upon the nervous system. This is a valuable remedy in those irritable cases of spermatorrhoea, when alternated with such other remedies as may be indicated. It is much better in mania-a-potu than opium. Prof. Wm. Paine, of Philadelphia, says: "I have cured some cases of hysteria with this remedy, and have found it to afford great relief in epilepsy." I have cured several cases of spermatorrhoea with this remedy, combined with pyrophosphate of iron. I usually give five grains, three times a day, as a soporific. Hops or the extract, lupulin, is rather feeble and not so certain as opium, but it is mild, and may often be given with benefit. The usual dose is from three to five grains, every three hours. The fluid extract and essential tincture are good remedies.

Lupulin.—Lupulin is the active principle of humulus lupulus, or the pollen of the hop, and should not be mistaken for the crude pollen of the hop. Lupulin, when pure, is a tonic, sedative, and anæsthetic upon the nervous system, and somewhat resembles morphia; but it is much milder in its effects, and does not affect the brain nor constipate the bowels like morphia; consequently, as a calmative, it may often be given in preference to morphia or opium. While it relieves the hyperæsthesia of the nervous system it also imparts tone and vigor to the depressed nerves. As a tonic-nervine, I combine cypripedin with the lupulin and scutellarin. In delirium tremens, lupulin combined with cannabis indica, gives prompt relief to the excited and irritated brain that exists in that disease. In spermatorrhea, lupulin combined with such other remedies as may be indicated, will be found to exert a very salutary effect. In low, typhoidal fevers, where there is typhomania, I have found lupulin and cypripedin to act kindly and very promptly in relieving that condition of the brain, and

producing sound and refreshing sleep. In cases of excitability of the brain from over-mental exertion, lupulin is a very efficient remedy, and may be given in doses of two or three grains every three hours. The usual dose is from two to five grains.

Passiflora Incarnata—Passion Flower.

In the form of a saturated tincture or fluid extract, the passion flower has been used in epilepsy, chorea, and other nervous affections with reputed success, but has not been thoroughly studied. It relieves irritation of nerve centers, and improves innervation of the sympathetic system. In this way, it improves the circulation and nutrition. It is of benefit in congestion of the uterus and ovaries. It also produces sleep in some persons, in doses of thirty to sixty drops, every half hour. It frequently relieves neuralgia, and will prevent spasms in children. In tetanus it is very positive in its action, in doses of thirty drops every half hour until it relieves. It is a positive remedy in erysipelas.

Chloral Hydras-Hydrate of Chloral.

Hydrate of chloral (introduced by M. Liebreich, of Berlin, in June, 1869) has lately attracted attention, and seems to be maintaining its reputation in part. It will generally produce sound and refreshing sleep in doses of fifteen to twenty grains. It has the advantage over opium and morphia that it is not followed by constipation and the other ill effects that attend opium, especially when given in large doses. As an alleviator of pain it is not equal, generally, to opium; but in all cases where there is a determination to the head, it is far safer than opium, especially when combined with equal quantities of bromide of potassium or of bromide of ammonium, say ten grains each, which dose may be repeated every hour or two until sleep is produced.

In puerperal convulsions chloral seems to be one of the most positive remedies we have. I saw recently a report of twelve cases of this affection treated with hydrate of chloral, in which it proved successful. It should be used in large doses in this affection, and alternated with the solanum nigrum. If these remedies are used when the first indications of the disease make their appearance, they will prevent the attack. If the patient cannot swallow, thirty grains dissolved in a few ounces of water, used as an enema, will produce the desired effect. Hydrate of chloral is very successfully used also for a dressing for wounds and ulcers, the solution for which may vary from three, to five or fifteen grains to the ounce of water, covered with lint and gutta percha in the ordinary manner. In that sleepless state that often follows drunkenness and in delirum tremens, hydrate of chloral is a very positive remedy, and may be used in large doses.

This agent, like opium, if used habitually, soon produces a depraved craving for its quieting, soothing, lulling effects, and the subject finds it difficult to break off from the habit. While its immediate effects are very calming, soothing and quieting upon the mental sphere, yet its remote or ultimate secondary effects are finally depressing and irritating to the nervous system; hence, it should not be used too long.

It is a valuable remedy in dementia and insanity. When patients are inclined to be destructive in their insanity, twenty to thirty grains will counteract this tendency and improve their general health. Melancholic patients become cheerful under its use, the appetite improves, and the bowels frequently become regulated by it. Notwithstanding that it thus produces good effects in most cases, yet in others it may congest the brain, unless alternated with belladonna, solanum nigrum, or the bromides. Prof. Hammond, of New York, relates a case that proved fatal, where chloral had been given for a disease of the brain, in which post-mortem examination revealed congestion of that organ. Traumatic odontalgia is frequently cured promptly with this agent.

For ordinary toothache, a small quantity may be placed in the cavity of the tooth, and kept there with a bit of cotton. It is also valuable in painful chordee attending gonorrhea, for which purpose ten or fifteen grains may be taken at bedtime every night, which prevents the painful erections, and thus wards off the chordee. In painful menstruation, if viburnum fail, chloral, in ten or fifteen grain doses every three hours, often relieves the pain. It has arrested tetanus in many instances very readily, but it requires large doses in this disease. It is also valuable for strychnia poisoning, but requires large doses.

Bromide of Ethyl. C₂H₅Br.—Hydrobromic Ether.

This anæsthetic has been employed largely in the hospitals of Philadelphia with flattering results. Its action is rapid and it passes off rapidly, and its administration is believed to be safe. It produces no caustic, or irritating effect. It may be employed subcutaneously or applied to mucous surfaces, or on the meatus of the ear safely. It is eliminated by the lungs almost entirely. It does not affect the circulation, nor does it disturb the appetite. It does not produce nausea or vomiting. Its vapor does not irritate the bronchial tubes. It is regarded as a superior anæsthetic. The subject should not be kept under its influence over an hour. From one to four drachms are usually required.

Locally applied, the bromide of ethyl, in the form of a spray, produces local anæsthesia, which probably depends upon the cold, chilling effect of the spray, and upon a direct action of the anæsthetic upon the nerves themselves. In neuralgia and toothache it may be used locally with good effect. As an anæsthetic, it may be used alone, or as a mixture: one part of bromide of ethyl to three parts of chloroform and four parts of alcohol. It is not absolutely safe, as one death has occurred from its use, and that one occurred, it is believed, because the patient was kept too long under its influence. It is not safe to keep a patient under the influence of this anæsthetic over forty minutes. Hence, it is not applicable to cases that require a

longer time than thirty or forty minutes to complete an operation.

Butylchloral Hydras—Croton-Chloral Hydrate.

Croton-chloral hydrate is formed by the action of chlorine gas upon aldehyde. It is a chlorated aldehyde of crotonic acid.

Medical Effects.—Croton-chloral destroys the sensibility of the cranial nerves, affecting only the brain and nerves of the head, while chloral hydrate effects the entire nervous system.

This drug produces anæsthesia of the brain and head, leaving the nerves of the body in a natural condition. It is a very positive remedy for neuralgia and other painful affections of the head and face. It is very positive in affections of those parts supplied by the fifth pair of nerves—that is, the upper and lower jaw, the face, and supra-orbital region of the forehead. It is a very valuable remedy for toothache, especially where it is paroxysmal. It may be given in doses of five to twenty grains, dissolved in water, according to the severity of the affection for which it is given. As this article does not affect the nerves of the heart, like hydrate of chloral, it may be given even where that organ is diseased; but not so with chloral hydrate, which affects the nerves of that organ, and cannot be given in diseases of the heart. Croton-chloral is a new remedy and has not been fully tested as yet. It is a very positive remedy for painful affections of the head and face, and may be given in doses of from five to ten grains every one or two hours as may be required. The extreme dose is twenty grains.

Amyl Nitris-Nitrite of Amyl. C₅H₁₁N₂O₂.

This remedy is highly recommended in spasmodic affections, as it has the power of paralyzing the motor nerves. But in over-doses its physiological action renders it dangerous; consequently, it must be used carefully.

Physiological Action.—It dilates the cerebral vessels. Epileptics are very susceptible to its action. Upon the spine,

it lowers the reflex irritability. It affects the heart and vascular system very quickly when the vapor is inhaled. If it is inhaled in doses of ten to twenty drops, the action of the heart soon becomes very rapid, the face flushes, and the arteries throb, giddiness ensues, and if the dose be now increased, the action of the heart becomes weak, etc. It greatly dilates the arteries, which is shown by flushing of the face, and congestion of the retina, and by a free flow of the blood from a cut of the skin. It lowers arterial tension, and the enlargement of the calibre of the vessels depends upon the direct action of the drug on the muscular coats of the arteries, and not on the vasomotor system. It diminishes oxidation, and the hæmoglobin is checked in its functions of absorbing and giving out oxygen. Hence, in fatal poisoning from nitrite of amyl, the arterial and venous blood become almost of one color.

Therapeutic Action.—This remedy has been used with success in angina pectoris, and epilepsy, in suitable cases. It is positive in its effects in cases of angina pectoris. It is only applicable in such cases of epilepsy as occur from anæmia of the brain. It ought to be inhaled when the distinct aura epileptica is felt, or just as the pallor of the face is observed by the attendant.

It has been proposed in tetanus and in strychnia-poisoning, and in neuralgia, by inhalation of five drops occasionally. It is also recommended in cases of chloroform poisoning. It is also, in small doses, a remedy for flushes of the face, so unpleasant to some vigorous young persons, in which case it should be given in small doses, of the first dec. dilution. In flushes that attend some females at the menopause, small doses, say one to two minims of the first dec. dilution, three or four times a day, act very positively. This is dual in its action. Nitro-glycerine has a similar effect.

III. DELIRIANTS.

All of the remedies generally included in this class are from the natural order, solanaceæ; and of all the narcotics they approach the nearest to sedatives. They have very slight stimulant action. They produce sleep only by their anodyne and sedative influence on the nervous system. As anodynes they are not so prompt and powerful as opium, but they are not constipating, nor do they lock up the secretions like opium; hence they may be often given where opium is inadmissible.

This class of medicines all dilate the pupil of the eye, but belladonna, or its salt, atropia, is mostly used for that purpose. Stramonium strongly impresses the respiratory nerves, and is used in asthma. All the remedies in this class of narcotics produce delirium when they are given in over-doses.

Now we may contrast the effects of these three divisions of narcotics upon the true cerebral or mental functions.

Inebriants impair equally the mind, volition, and the five senses. Soporifics extinguish for the time both volition and the senses, but may leave the mind uninfluenced, while deliriants excite the mind and lead it astray. The mind dwells upon unreal objects, and hallucinations are presented to the senses.

Hyoscyamus Niger-Henbane.

Hyoscyamus has usually been prepared from the old dried herb, and hence has been almost worthless. If prepared from the green or freshly dried leaves, eight ounces to one pint of alcohol (76°), the dose then will be from two to six drops, repeated every three hours.

Physiological Action.—Hyoscyamus and its preparations cause the same dryness of the mouth, dilatation of the pupils, flushing of the face, rapid action of the heart and of the respiratory muscles, the busy delirium, hallucinations and illusions which are produced by atropia, but these effects are of a milder type than those caused by atropia. It has more hypnotic effect and less deliriant action than atropia. In its action on the pupils, on accommodation, and on the heart and respiration, there seems to be great similarity. Hyoscyamus and daturia act similarly on the sympathetic system of nerves, either in

large or small doses. Both these drugs stimulate the vasomotor fibers, and raise the arterial tension, and in large doses they paralyze the vessels and lower the arterial tension.

Upon the heart, however, the action of these drugs differs. Hyoscyamus renders the heart-beats more regular, while daturia causes intermittent action of the heart. But the alkaloids of these drugs, applied directly to the heart, slow, and finally stop its action entirely. Both these drugs, in large doses, accelerate the respiratory movements; and in moderate doses, both increase peristalsis; but in very large doses they arrest it. In toxic doses, both these drugs blunt the sensibility of the skin. They do not affect the contractility of the muscles. They dilate the pupils by stimulating the sympathetic nerve, and not by the paralysis of the third nerve. The circulatory disturbances, by increasing the quantity of blood, account for the various phenomena produced by both these drugs.

These drugs are soon eliminated by the kidneys; hence their action is not of long duration. While there is a close correspondence in the physiological action of atropia and hyoscyamine, also in their chemical composition, yet, there is sufficient difference in their molecular arrangement to cause variations in their physiological action on the system. Hyoscyamus seems to act with much more force in acute mania with depression, than in chronic mania. It also acts well in epileptic mania, and diminishes the severity and number of the attacks.

Hyoscyamus stimulates the cerebro-spinal centers, and thus inclines to sleep, and also lulls pain. It influences to some degree the great sympathetic, particularly that part of it that gives innervation to the vegetative system. It allays irritation and thus acts as a sedative. It does not arrest, but rather favors secretion. It has generally been used in toxic doses, and therefore its value has not been generally known. It may often be given as a substitute for opium, and is less objectionable than that article, as it does not lock up the secretions nor produce constipation. As an anæsthetic, to lull pain, it is very

valuable. In neuralgia it is preferable to opium in many cases. In that peculiarly irritable condition of the nervous system called nervousness, it will produce the most happy effects. In irritability of the bladder, it is a very prompt remedy, for which purpose it may be combined with lupulin, or alternated with it, or cypripedin or scutellarin.

Hyoscyamin.—Hyoscyamin is the active principle of the hyoscvamus niger, which has been long known to the profession; but hyoscyamin itself has not long been used, and therefore may be classed with the new and concentrated remedies. I have used the inspissated extract and fluid extracts, but these I have found very uncertain, as I have also found the hyoscyamin prepared by some manufacturers; but when made pure, the hyoscyamin is one of our best anæsthetics. It has a happy effect in cases attended with hyperæsthesia, quieting excitement of the nerves, soothing pain and disposing to sleep, and does not constipate as opium does. In over-doses its toxic effects are deranged vision, dilated pupils, giddiness, headache, loss of speech, coma, convulsions, nausea, vomiting and intestinal pain, and finally stupor and death. But in medical doses it is anodyne, calmative, and soporific. As a nervine it may be given in low forms of fever, where there is prostration and irritability, with good results. In rheumatism and other very painful diseases, this remedy may take the place of opium, and may be given in doses of one-sixteenth of a grain, repeated as it may be required. In all cases where morphine is indicated, the hyoscyamin will be preferable, as it does not constipate. The dose is from onethirtieth to one-sixteenth of a grain twice or thrice a day.

Atropa Belladonna—Deadly Nightshade.

This is another remedy that has been very feebly prepared. The ordinary tincture sold in our drug stores, is very uncertain in strength, and no man can possibly practice medicine with any degree of success while using such uncertain preparations. The tincture should be prepared, as all others, from the freshly

dried or green plant, eight ounces to one pint of alcohol (76°). The dose then will be from one to five drops, repeated every three or four hours.

Physiological Action.—After a full dose of belladonna, a tendency to delirium soon ensues, usually of a peculiarly joyful character, and generally accompanied by hallucinations and spectral illusions. The subject generally falls asleep. Belladonna, in large doses, paralyzes the terminal filaments of the third nerve supplied to the circular or sphincter fibers of the iris, and thus allows the sympathetic, which controls the radiating fibers, to come into unchecked play, and thereby to dilate the pupil. At the same time, there is a diminution in ocular tension, and imperfect vision, especially for near objects, which is the result of a paralysis of the power of accommodation. Some writers say that it also produces diminished sensibility of the cornea and retina, with prolonged retention of images by the retina. It is believed to have some special influence over the muscular tissue of the iris.

It has a powerful influence over the vaso-motor nerves. In large doses, it paralyzes this system of nerves, but in medical doses, has the very opposite action. It paralyzes the terminal inhibitory filaments of the pneumogastric nerve, distributed to the heart, as well as the nerve itself, thus increasing the force and rapidity of the heart's action. It will be remembered that the sympathetic nerve supply has the power to cause rapid action of the heart; but a proper balance of force is sustained by the pneumogastric nerve, which inhibits or restrains the action of the sympathetic nerve. By paralyzing these inhibitory filaments, belladonna turns the heart over to the sympathetic nervous system, which, without restraint, greatly increases the heart's action. And with this rapid action of the heart, there is also increased arterial tension. Belladonna has also the power of contracting the small vessels, probably from its direct action upon the unstriped muscular fibers surrounding these vessels, especially the arterioles.

Belladonna tends to increase the rapidity of the breathing, by directly stimulating the respiratory center. It has the power to contract the unstriped muscular fiber in other situations besides in the arterioles. It acts upon the bladder and also upon the intestines to some extent.

Belladonna checks the salivary secretion, thereby causing dryness of the throat, mouth, fauces and nose. This is from a selective affinity that it has for the secretory branches supplied from the chorda tympani nerve to the submaxillary ganglion. Belladonna arrests the action of the skin, and occasionally causes a red eruption, resembling scarlatina. This drug also checks the secretion of the mammary glands, when given internally, or used externally. Belladonna increases the flow of urine, by raising the tension in the glomeruli of the Malpighian bodies in the kidneys.

Atropin used in the eye, occasionally causes erysipelatous inflammation of the lids and face, and sometimes causes prolonged dilatation of the pupils. The too long use of atropia may cause conjunctivitis, erythema, eczema, and a pearly granulation on the conjunctiva. We may find persons who are very easily affected by this drug, who will have dryness of the mouth, throat and nose, even from small doses. This dryness of the mouth is the first indication of the physiological action of belladonna. This is soon followed by thirst, increased temperature, more rapid pulse and breathing, red tongue, flushed face, delirium, convulsions, and finally coma sets in, and death ends the scene, if the dose has been sufficiently large.

Belladonna is a fine stimulant to the capillary circulation of the nerve centers, and counteracts the effects of opium. For this purpose it may be alternated with caffeine. As a stimulant to the nerve centers it is one of our best remedies, in all that class of diseases caused by such zymotic or malarious poisons as tend to produce congestion of the spinal centers—as typhoid disease, and such as locate upon the skin—as scarlatina, measles, etc. I have derived much advantage from

it in cerebro-spinal meningitis. It opposes congestion, and this peculiar property renders it a valuable remedy in many diseases where congestion exists. This it does by a peculiar power to stimulate and increase innervation to the capillary circulation; it thus overcomes atony of the capillaries and restores their contractile power in a very remarkable degree. This fact I have recently attested in a great many instances.

Belladonna is a valuable remedy in diabetes insipidus, and in many cases of incontinence of urine, especially those caused by feeble pelvic circulation. In cases of paralysis from congestion of the spinal centers belladonna gives the best of results; there are cases in which strychnine is not only useless, but is actually injurious. Atropia, in the proportion of one grain to one ounce of distilled water, is used to dilate the pupil of the eye. In many cases of conjunctivitis, where there is great congestion of the capillaries, this solution — one grain to one ounce of water-will aid very materially in reducing the congestion. It may be alternated with such other collyria as may be required. Belladonna is an antidote to the toxic effects of opium. This fact I have frequently tested. I was called to a lady a short time ago, laboring under an attack of hysteria, to whom, by the direction of a physician, one and a-half grains of morphia had been given. I found her wildly frantic, pupils contracted, face flushed, pulse very quick, small and corded; I gave her about five drops of tincture of belladonna and a spoonful of raw coffee tea. She was relieved in a short time.

Atropin.—Atropin is a concentrated article manufactured from the atropa belladonna, or deadly nightshade. The toxic effects of atropin are: dryness of the mucous membrane of the mouth and fauces, difficulty of swallowing, constriction of the fauces, with some inflammation, dilatation of the pupils, presbyopia, with obscurity of vision, as amaurosis; optical illusions, suffused eyes, numbness of the face, giddiness, delirium and a kind of intoxication, sopor, and a scarlet eruption upon the skin, irregular muscular movements, finally coma; and if con-

tinued, death results. Its therapeutic effects are to determine to the cutaneous surface and mucous tissues, increasing elimination from the skin, and thereby transferring eruptions from the mucous surface to the skin; and hence its utility in exanthematous fevers, and eruptive diseases.

In scarlatina and rubeola, when the eruption is slow in appearing upon the surface, one-fourth of a grain of atropin, triturated in ten grains of lactin and added to half a tumbler of water, and given in teaspoonful doses every half hour or hour, will generally transfer the eruption to the cutaneous surface. Atropin is regarded as a prophylactic in scarlatina, and must undoubtedly possess such powers. It is regarded as an antispasmodic, and as such it is prescribed in various convulsive affections. It is also prescribed in paralysis, neuralgia, and some other diseases. The dose of atropin is from one-fortieth to one-twentieth of a grain; or triturated, one grain to ten of lactin, the dose of the trituration is one-half to three-fourths of a grain.

Duboisia Myoporoides—Duboisia.

This is an Australian tree; order solanaceæ. It contains a poisonous alkaloid, *duboisine*, which is believed to be identical with hyoscyamine, and which strongly resembles atropine in many of its effects.

Physiological Action.—Physicians have not used duboisine much as yet, but ophthalmologists have employed it as a mild mydriatic. Its claims are, that it is more rapid in action than atropia in paralyzing accommodation and effecting mydriasis, that its effects are of shorter duration, and that it causes less irritation of the conjunctiva. Its physiological effects are very similar to those of its congener, belladonna. But its alkaloid is more soluble in water than atropia, excites the cerebrum less than atropia, and is more hypnotic.

Therapeutic Action.—As a remedy for night-sweats, in phthisis pulmonalis, this drug seems to excel belladonna.

And in the various neuroses of the respiratory organs, and for the stimulation of the action of the heart, duboisia will, probably, supersede atropia. As an antagonist to opium and its preparations, duboisia is as effective as atropia, but far superior as a hypnotic and anodyne. It stimulates the respiratory center, which may be of use in some peculiar affections. The sulphate of duboisia is used, by hypodermic injection, in solution of two to four grains to the ounce of water, as a mydriatic. The dose of the fluid extract is two to four minims, and the dose of the tincture, from three to five minims. It relieves irritable bladder, in doses of five drops three times a day.

Solanum Nigrum-Garden Nightshade.

Solanum nigrum or garden nightshade belongs to the natural order solanaceæ. It grows in gardens, around yards, and near walls. It has a low stem, much branched, spreading, angular, nearly smooth, with ovate, wavy-toothed or sinuate leaves. and perforated, the edges erased, as if gnawed by insects. The flowers are white, small, with yellow anthers, lateral umbels, drooping, fins parted, on tractless pedicles; the berries are black when ripe, globose, and of a sweetish taste. It begins to flower in June, and continues until September and even up to October, and we often see ripe berries, green berries and flowers, on the same plant. The whole plant has a narcotic odor, resembling in some degree the tomato plant. It grows generally in a shady locality. It resembles the belladonna and has often been used for it, but may be distinguished from it by the smaller stems and the purple color; the stems being smooth. not hairy, as those of belladonna. The flowers of the belladonna are large, dark-brownish, or purple color, pendant, bellshaped, furrowed, cut in five segments.

Medical Properties.—The tincture is made from the fresh plant and berries, eight ounces to one pint of alcohol; the dose then would vary from one to five drops. but from the fraction of a drop to one drop will be the ordinary dose. Like

belladonna, which it resembles in its pathogenesis, solanum nigrum acts upon the nerve centers, stimulating their action, and thereby opposing congestion. It contracts the capillaries, and is thus a remedy in many diseases where there is torpor or atony of the capillary circulation. The indications for its use are much the same as those given for belladonna; that is, when the patient is dull, drowsy, and sleeps with the eyes partly open, and, when awake, has rather an expressionless countenance, with dullness of the eyes, and the pupils dilated. As a remedy in scarlatina it is equal to belladonna; and as a prophylactic against scarlatina, it will, I think, prove to be equal to belladonna. It should be given in small doses to get its medical effects, for if given in doses sufficient to dilate the pupils, we will get the toxic, and not the medical effects. small doses it relieves headache of a nervous or congestive character. It is also a remedy for erysipelas of the face. For inflammation of the stomach and bowels it will prove a valuable remedy. Dr. Eberle used it with success in the treatment of painful chronic ulcers. He gave two grains of the dried leaves night and morning; but small doses of the tincture every two or three hours would act better. Its peculiar power over the nerve centers points it out as an appropriate remedy for epilepsy, spasms, cramps of the extremities and contraction of the flexors. It will doubtless do good service in cerebrospinal and cerebral meningitis. Prof. E. M. Hale says: "In headache it gives me and my patients better satisfaction than belladonna." He further adds: "In angina it often acts admirably. Amaurosis and ophthalmia are under its powerful curative influence." It will likely ward off puerperal convulsions.

Datura Stramonium—Jamestown Weed.

Physiological Action.—Daturia and atropia, when given in large doses, give rise to very similar phenomena. Stramonium gives rise to more marked irregularity of the heart's action than is seen in the action of atropia. But we have in the toxic action of stramonium, the same accelerated pulse, the same elevation of temperature, the same wild delirium, the same frequency of the respiration, the same dilatation of the pupils. the same flushed face, and the restlessness and convulsions occur as frequently in poisoning from stramonium, as in poisoning from belladonna. Where a lethal dose has been taken, there will be the same abolition of the functions of circulation, respiration, and innervation. Stupor, paralysis, weak, thready, rapid pulse, threatened asphyxia, is seen in poisoning from either harcotic. It contracts the capillaries to some extent. It increases the pulse rate and arterial tension, even in small doses, but in large doses it diminishes arterial tension, but increases the frequency of the pulse. Moderate doses of this drug do not destroy the conducting power of either the sensory or motor nerves, nor do they affect muscular contractility, Small doses tend to increase peristalsis, but large doses diminish it. All of these facts prove that there is great similarity of action in atropia and in daturia, in large doses. antidotes of the two are also about the same. Green coffee tea, opium, and at first, emetics, are the antidotes that I have found successful in several cases.

Stramonium possesses the stimulating property of the other articles of this class, but is not so much used. It dilates the pupil as readily as belladonna. It has considerable influence over the spinal centers. An ointment made in lard or sweet oil, with mutton tallow added, makes a good application to piles, and also to old ulcers that are inclined to inflammation. The good effects in these cases doubtless result from its influence over the capillary vessels of the parts, and its anodyne impressions upon the nervous system.

Prof. John M. Scudder states that he has been credibly informed that stramonium is the principal agent in the "Opium Antidote," combined probably with a good stomachic. And I have no doubt but that it would destroy that peculiar morbid

thirst for such a stimulant upon the brain. Stramonium in large doses produces that peculiar form of delirium with the wildest hallucination. Doubtless this is one cause why it has been discontinued as a medicine. I have used it frequently in some painful affections, as neuralgia, lumbago and other forms of rheumatism. It is a good remedy in dysmenorrhea, and much to be preferred to opium. It should be tinctured from the fresh seed, four ounces to one pint of alcohol. Dose, five to ten drops.

Lachnanthes Tinctoria—Spirit Weed.

Perianth woolly outside; six-parted down to the adherent ovary; stamens, three, opposite the three larger or inner divisions; the filaments long, exserted; anthers, linear, fixed by the middle; style, thread-like, exserted, declined; pod, globular; seeds, few on each fleshy placenta, flat and rounded, fixed by the middle. Herb with red, fibrous, perennial root; equitant, sword-shaped leaves, clustered at the base and scattered on the stem, which is hairy at the top and terminated by a dense compound cyme of dingy yellow and loosely woolly flowers. It grows chiefly in sandy swamps, southward near the coast, but has been seen in Rhode Island and New Jersey. It is a new remedy.

Medical Properties.—This article has not been tested sufficiently to fully develop its medical properties, but from the limited experience with it, it seems to simulate in action agaricus, belladonna, hyoscyamus, lachesis and solanum nigrum. In over-doses it causes headache similar to cimicifuga, belladonna and other cerebral remedies. It has been given in delirium from pneumonia with good effect. It is highly praised in diphtheria, especially where there is stiffness of neck, with a tendency to draw to one side. It is a remedy for cerebro-spinal congestion and brain fever. It affects the eyes similar to gelsemium and may be useful in ophthalmia.

The tincture of the roots and tops should be used. Dose, from one to five drops.

Tonga, or Tongaline.

This compound has been much lauded as a specific for neuralgia. I have used one small sample vial, and thought well of it, but did not have enough to fully test it to my satisfaction. Drs. Ringer and Murrell report, in the London Lancet, several cases promptly relieved with this preparation. One of these cases was neuralgia of the infra-orbital nerve and the great occipital nerve; three doses cured this case. The second case was a very severe dragging of the supra-orbital branch of the fifth and the great occipital nerves; this case was not cured. The third case was of the great occipital, and was cured with four doses, of thirty drops each. The fourth case was of the eyes; thirty drops twice a day cured this case.

CHAPTER VIII.

Restoratives.

THIS name is here given to this class of medicines from the fact that they restore to the blood certain materials lack-They are divided into six orders, each distinct in its action and characteristic in its mode of action. These are aliments, acids, alkalies, tonics, chalvbeates, and solvents. This arrangement is founded upon the therapeutic operation of medicines, and not upon their action in health. Food is the proper restorative for the healthy man. Medicines are mere relative agents, and should be given in reference to the existing state of disease. We must, therefore, state that all the socalled "provings" in health are very unsatisfactory evidence of the action of a medicine in disease, from the fact that that morbid condition calling for the remedy, does not exist. But when such a condition does exist, and when the remedy is found to counteract this morbid state, then it may be set down as a remedy.

Now, in the class of remedies under consideration, it will be seen that the restoratives act in the blood—that there are substances in the blood like them, or that resemble them, and that some of them being necessary in the blood, may remain in it as an element. Now, when a disease depends on a want of a certain material in the blood, the cure consists in supplying it at once.

I. ALIMENTS.

The first order of restoratives—that is, aliments—I shall not discuss, as they belong to dietetics and not to materia medica.

II. ACIDS.

The following acids are used as restoratives: Mineral; sulphuric, hydrochloric, nitric and phosphoric; vegetable; acetic, citric, tartaric, oxalic and malic; and of the animal acids, lactic. Also, the supersalts of the alkalies, which have an acid reaction, are used as restoratives with benefit.

Although the mineral acids are quite different from the vegetable acids in their action, and are much more powerful, yet their effects are very similar in many cases. They should always be largely diluted in water to prevent their corrosive action upon the stomach. Dr. Pereira says that, "though they act as acids in the alimentary canal, yet they enter the blood as salts." He thinks that they combine with the free alkaline constituents of the saliva, bile and pancreatic fluid. (See Pereira's Materia Medica, vol. i, p. 171.) But this explanation is calculated to teach an error in regard to the action of this class of remedies. If they did thus combine with alkalies before entering the blood, alkaline matter would have to be secreted to supply that which they had neutralized, and the acid in the fluid would be increased.

The action of acids is different from that of their salts. Sulphuric acid is quite different in its action from the sulphates of soda and magnesia; so is hydrochloric acid from that of common salt. We must remember, too, that the saliva, bile and pancreatic fluids are nearly neutral, and but slightly alkaline in their reaction. When an acid is given as a medicine, and it enters the stomach, it there meets with an active absorbent surface which is secreting an acid and not an alkaline fluid. It appears more probable that the acid would enter the blood as an acid and not as a neutral salt. The mineral acids are not unnatural to the blood, but exist in it in combination, and the vegetable acids have an analogue in lactic acid. In health the blood is rendered alkaline by the presence of carbonate of soda or an alkaline phosphate of that base; it also contains a small proportion of carbonate or free ammonia; so

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that acids, as soon as they enter the blood, combine with this alkali, and the result is a reduction of the amount of basic matter in the system and an increase of the acid given.

Thus the free acid acts as a true restorative, if it is demanded to counteract excess of alkali in the blood. It may then pass off through the kidneys. It is thus that mineral acids are of great utility in putrid and typhoid fevers, these fevers being associated with an excess of alkali in the blood. Huxham, Murchison and Chambers recommend acids in typhus and typhoid fevers. Dr. Chambers treated one hundred and nine cases on general principles; twenty-three died; he treated one hundred and twenty-one with hydrochloric acid, and only four died. Dr. Day, of Stafford, found nitric acid of great benefit in malignant scarlatina. Dr. Blair found, by a test, that there was an excess of the salts of ammonia in the blood in yellow fever. Acids are used also to correct a phosphatic deposit in the urine, where there is an excess of alkali in it.

The use of mineral acids in feeble digestion is frequently attended with good effects; for it is now generally believed by physiologists, that the gastric fluid is partly composed of an acid, and that, too, in excess. Hence, when the wonted acid is deficient in the blood, it should be supplied artificially. Hydrochloric acid has been used for this purpose, and I can attest its utility in many cases of dyspepsia. Headland thinks lactic acid the one needed in the stomach; and there is no doubt that it may do good in many cases. But often in dyspepsia there is an excess of acid in the stomach, and alkalies are demanded instead. In some cases of diarrhoea, where there is an excess of alkalies in the blood, they will be benefited by acids; but it seems that more often there is an excess of acids, and alkalies are demanded. In scurvy, citric acid seems to act more as a restorative than otherwise. Some think. however, that it acts as a catalytic and not as a restorative. It is certain that in most cases acids act as restoratives: but alkalies operate generally as catalytics, sometimes as restoratives.

Acidum Sulphuricum—Sulphuric Acid.

We have said that there are certain diseases in which there is an excess of alkali in the blood, either as a basis of diseased action, or a complication intensifying that morbid action. Now it is necessary that the therapeutist should be able to determine this morbid condition, and, as Professor John M. Scudder remarks, "The youngest practitioner need not mistake this condition." He says: "The color of the mucous membranes is a deep red, especially of the mouth, throat and tongue; the coating of the tongue, sordes or any exudative material has a dark color, usually brownish. It makes no difference what the diseased action is in its totality, or what it is called, the deep red, somewhat dusky color always demands the administration There is but one exception to this, and that is a rare one, in which the excess is of soda, but with a deficiency of potassa. In this case the salts of potassa will answer a better purpose than acids, and may be combined with them." There is always a choice of acids in each individual case demanding them. They do not all fulfill the same indications. The good effects of acids mainly depend upon the selection of the proper one.

Sulphuric acid answers the purpose of a local caustic or escharotic. It may be used for its influence over the capillary vessels, as an astringent in passive hæmorrhages, or to check coliquative sweats after prostrating diseases. Its greatest use, however, is to form salts with alkalies. These sulphates fill an important place in the materia medica, which will be duly noticed.

Acidum Muriaticum-Hydrochloric or Muriatic Acid.

Hydrochloric or muriatic acid is generally useful, especially in acute cases. It may be given in doses of from three to six drops, largely diluted, and repeated three or four times a day. I usually add twenty-five or thirty drops to the ounce of water, and give a teaspoonful in half a glass of water. I have been

using this acid, alternated with proper tonics, for years in cases of indigestion, and have often derived the best effects from it. It not only supplies the deficiency of the gastric fluid, but it lessens the tendency to the accumulation in the stomach, of that morbid fermentation that exists in most cases of dyspepsia. It benefits where, from excess of alkali, there is a want of appetite.

Acidum Nitricum-Aqua Fortis-Nitric Acid.

Nitric acid may often be used in cases of typhoid diseases, as typhoid fever, typhoid dysentery, and in many cases where an acid is indicated. In the malarious regions of the South, where the liver is frequently congested from malaria, nitromuriatic acid may be used in doses of three to five drops in a half glass of water three or four times a day, and is far preferable to the preparations of mercury that are resorted to by thousands in that region.

Acidum Lactum-Lactic Acid.

For children needing an acid, lactic acid may be given, largely diluted, in doses of from ten to twenty drops, according to age, sweetened, if preferred; and in some cases of indigestion I have found that lactic acid, alternated with tonics, accomplished great good. Acids should never be given in too large doses, nor repeated too often, nor should they be given without being well diluted with water.

Acidum Citricum-Citric Acid.

In scurvy, citric acid acts more as a catalytic than as a restorative, as it seems to remove that morbid cachexia from the blood in some unknown way.

III. ALKALIES.

We come now to consider the third order of hæmatics, which act sometimes as restoratives, but as catalytics at other times, just according to the conditions of the blood when they are given, etc.

The alkalies all pass into the blood, are neutral to it, and are all found in the blood. The neutral salts, formed from a union of the alkalies and the vegetable acids, undergo oxidation in the blood, and are converted into carbonates. Those given as purgatives in large doses pass out with the fæces, unchanged; but if given in small doses they are apt to be oxidized, and then pass out in the urine; some of them act as diuretics.

Alkalies are used wherever there is an excess of acid in the system, for an excess of acid in the blood will produce disease. In cases, also, of a tendency to lithic acid deposits in the urine, alkalies are of material advantage. The bicarbonates are the best, as they may be given in larger doses, and are less irritating to the stomach. The citrate of lithia has become quite popular for this purpose. Lime-water also answers a good purpose in some cases. These all diminish the acid in the blood, and increase the secretion of urine, rendering that fluid alkaline by setting free the ammonia from its combinations with the fixed alkalies. A deficiency of alkalies is found to constitute an element in many forms of disease, and demands the proper treatment. Now, we may point out the indications for alkalies, which are the opposites of those named for acids; and I cannot do it better than by quoting Prof. Scudder again. He says: "The tongue is pallid and broad, its coating pasty and white, or yellowish-white; the mucous membranes are uniformly pallid."

Since reading these remarks of Prof. Scudder, I have noticed many cases, and various diseases, and I find that when the above conditions exist, the bicarbonates of soda or potash invariably do good service, and I am fully satisfied of the fact stated, that the above symptoms do indicate the use of alkalies. In all cases where the alkalies are deficient, the digestion and appetite are very apt to fail; and so of the deficiency of acids in the blood. There is, also, feeble innervation, causing feeble

circulation, as well as feeble nutrition, and waste. This deficiency constitutes the basis of a great many diseases.

Soda.

Soda being the natural salt of the blood, as it exists in the body in larger proportion than other alkalies, is oftener demanded, in cases of deficiency of alkalies, than the others of this class. The bicarbonate is a good preparation. If there exists a septic tendency, then the sulphite or hyposulphite may be given to much better advantage. Chloride of sodium (common salt) is generally sufficient to keep up the supply in health, but may be taken in excess, and thereby produce disease.

Potassa.

"Potash," says Prof. Scudder, "is indicated where there is feebleness of the muscles to greater extent than can be accounted for by the disease." It is often called for where there is a tendency to deposits of lithic acid—calculi in the bladder. I have often counteracted this tendency by the free administration of the carbonate or bicarbonate of potassium. In that peculiar acid condition of the blood that exists in arthritic fever I almost invariably use potassa, and think it preferable to any other agent, except lithia; that may answer as well, or better in some cases.

Silicia—Silica.

This is only used in the form of a trituration. The third trituration is used in doses of one grain three or four times a day. It is indicated by slow tendency to repair tissues, or where there is profuse suppuration of ulcers or wounds. In abscesses where the suppuration is very profuse, the third trituration should alternate the sulphide of calcium (hepar sulphur), three or four times a day, until the suppuration is arrested. In nasal catarrh, where the mucous membrane is pale, with thin secretion and perverted nutrition, also a diseased con-

dition of the epithelial covering of the skin, and deformity of the nails, with harsh hair, this remedy will do good service. Dose, one to two grains, of the third decimal trituration.

Ammonia.

Ammonia is preferable where there is great debility, as it is a stimulant.

Lithii Carbonas-Carbonate of Lithia.

This is one of the most useful of the alkaline carbonates, as it readily neutralizes acid in the stomach, and also acts on the blood. Hence, it is a valuable article in all cases where there is excess of acid in the blood, as in calculous affections, and in rheumatism. Dose, five to six grains; five grains three times a day, well diluted in water, is sufficient in rheumatism.

IV. TONICS.

Under this head may be included all such remedies as increase the muscular power of the stomach, and increase the appetite by, perhaps, increasing the flow of gastric fluid. Many writers class antiperiodics with tonics, but I think with great propriety they may be separated. I have not found any very material advantage from the use of quinia, beberine, salicine, piperine or apiol in simple indigestion. They may have some good effects in some cases of nervous debility. Some of our most remarkable tonics do not seem to possess any very great antiperiodic property, as calumba, quassia, gentian, hydrastis, chelone glabra, ginseng, and many others of this extensive class. The question may be asked: Do tonics act on the blood, or on the nerves? We know that tonics have in some way the power to communicate health and strength to the system in debility; but we cannot tell whether they effect this result by bettering the condition of the blood, or by an action on the nervous system. It is probable that tonics act rather on the principle of stimulants, acting first on the nerve centers, and through the nerves on the muscles. Nux vomica at least TONICS. 117

seems to act thus. It may be said that tonics in some way give power to the nerve centers to generate nerve power, by which the whole system is strengthened and invigorated.

Tonics differ in their individual power to relieve debility. For debility of the digestive organs, some tonics act much more promptly than others. Where there is deficiency of the appropriative power, there are some tonics that act with much greater certainty than others. From this fact we are led to infer that this class of remedies, like others, has a tendency to certain tissues and functions, otherwise tonics would all act alike upon the digestive functions and the assimilating organs; but this is not the case with many of the remedies of this class. Some of them, it is true, act on the entire digestive and appropriative systems. Such seems to be the case with nux vomica, and perhaps with hydrastis canadensis, and some others. have said that tonics are different from antiperiodics, yet we are ready to admit that many tonics contain an antiperiodic principle; but it does not follow from this fact that all antiperiodics are tonics, nor that all tonics are antiperiodics; and there are general tonics that are not so direct in action upon the digestive functions as to entitle them to our confidence as remedies for indigestion. A tonic may energize other parts of the system, and not the stomach.

Some tonics act on certain tissues more than on other parts; for instance, rhubarb is a tonic to the mucous membrane of the stomach and bowels, and I think that it is probable that this article and some others act as tonics through their astringency; they contract the relaxed tissue of the parts upon which they act. It is quite likely that some other tonics act in the same way. Others, as Peruvian bark, act upon the nervous centers, thereby energizing the various functions of the vegetative system. Some tonics, as gentian, possess some power to stimulate the heart, hence they are inadmissible in febrile conditions of the system. Chalybeates act directly on the blood, imparting a deficient element, and are indicated only where there is anæmia.

Some tonics may act upon the blood by imparting phosphorus to the system, in the form of vegetable phosphates, so as to supply this element to the nerve centers, thus increasing nerve force. There are many plants that contain phosphorus in some peculiar combination, from which herbivorous animals are supplied with that necessary constituent.

Quassia.

Quassia is a native shrub of Surinam, is cultivated in Cayenne and in several of the West India islands, for the remarkable beauty of its flowers, which appear in November and December. A great deal now sold is spurious, is the product of a different plant, and is inferior to the genuine quassia. A great deal of commercial quassia now in market is the wood of the Q. polygama, or Q. picræna, and is far inferior to the true quassia. The Q. polygama is imported from the West Indies, and is used by brewers to give bitterness to malt liquors.

Medical Properties.—Quassia is a pure tonic, with a slight tendency to the cerebro-spinal system. In medical doses it acts as a certain, mild and unirritating tonic; it does not seem to possess any astringency or any stimulating property; it is not injured by the addition of chalybeates, as are some tonics that contain tannin. Quassia, if it can be procured pure, will be found to be very prompt in simple debility and in feeble digestion. The tincture may be made from the finely crushed chips, by adding four ounces to one pint of alcohol (76°). Dose half a drachm to one drachm. The dose of the fluid extract is from twenty to thirty drops three times a day, diluted with water.

Gentiana-Gentian, Yellow Gentian.

Gentian is a native of the mountains of Europe, but is cultivated elsewhere. The root is the officinal part.

Medical Properties.—Gentian is one of our best stomach bitters. I have often used the tineture or aqueous extract in atonic dyspepsia, with good effect. While I am not in favor of polypharmacy, yet I think that in many cases of feeble digestion I have derived most advantage from a compound tincture of gentian, hydrastis and chelone glabra, equal parts—dose, one teaspoonful. In cases where secondary digestion is feeble, a small quantity of the tincture of podophyllum, say one part, should be added to twenty parts of the above compound tincture. Gentian is too exciting to the mucous surface to be tolerated where there is gastric inflammation. The tincture should be made from the crushed root, eight ounces to one pint of alcohol (76°). Dose from thirty to sixty drops, three times a day; the fluid extract may be given in from forty to twenty drop doses, in water, three times a day, There are other species as good, if not better, than the foreign article, as the Sampson snake root, or straw-colored gentian. There are several other species, one the blue gentian, possessing diaphoretic properties.

Hydrastis Canadensis-Golden Seal.

Hydrastis canadensis is a native of North America. It is often called by non-professionals, yellow puccoon, ground raspberry, oneberry, etc. It flowers in April and May, and is soon succeeded by a beautiful red berry resembling the raspberry, but is not edible. The root dyes silk, wool and linen a beautiful yellow color, and with indigo it forms a rich green. When powdered, it forms a beautiful, fine, yellow powder.

Medical Properties.—Hydrastis is one of our most positive tonics. It is mild and unirritating, and may be used wherever a tonic is demanded. As a stomach tonic it will always give satisfaction, and like chelone glabra, it possesses a specific local action upon the mucous membranes. This property gives it a claim over the tonics named before, in cases of gastric debility. It also possesses considerable influence over the nervous system, and it has been thought to possess antiperiodic power, but as an antiperiodic it is feeble. As a stomach bitters in indigestion, I often use equal parts of the tinctures of

hydrastis, chelone glabra, and ginseng; dose, one or two teaspoonfuls, given three times a day, before meals. This is a favorite tonic with me in dyspepsia.

In atonic cases of indigestion, I have often derived the best results from the use of the finely pulverized root. In this form it seems to strengthen the circulation of the torpid mucous coat of the intestinal canal, thereby increasing the flow of the digestive fluids, and the action of the muscles of the parts. For this purpose two or three grains may be taken in water three times a day. The tincture may be made by adding four ounces of crushed hydrastis root to one pint of alcohol(30°); digest ten days and strain. Dose from thirty to sixty drops, in water. An admirable tonic for children may be made by percolating a mixture of alcohol, water and glycerine, equal parts, through a fine powder of hydrastis, ounce for ounce. Dose of this preparation is five to ten drops, according to the age of the child. This may be added to the food. The extracts, hydrastin, hydrastina and sulphate of hydrastia, are officinal, and may be given in one to two grain doses.

Hydrastin and Hydrastina, Berberina.—These are the concentrated medical principles of the hydrastis canadensis, or golden seal. The hydrastin is a resinoid, and acts as an unirritating tonic upon the muscular system, and especially upon the digestive system. The hydrastina is an alkaloid principle, and seems to possess a specific tendency to the mucous surface, and to act as a tonic to the general system.

In myalgia, hydrastin is an important remedy, giving tone to the enfeebled muscular structure, and relieving the morbid sensibility. In anemia, the hydrastin combined with iron, is prompt in restoring the red globules to the impoverished blood, and may be given in doses of one to two grains every four hours, triturated with white sugar.

The sulphate of hydrastina (hydrastia sulph. of commerce) is a special tonic upon mucous surfaces, and admits of a very extensive application. In all cases of debility of the digestive

apparatus, this is one of our best remedies, as it speedily imparts tone to the mucous surface, and increases the secretion of gastric fluid; hence its value in cases of dyspepsia. In chronic inflammation of the mucous coat of the stomach it exerts a very salutary effect, removing the hyperemia, and producing a healing tendency where there is ulceration of the mucous surface. I have used it with like good results in chronic ophthalmia, for which it may be added to rosewater, half a grain to two grains to the ounce, etc. It is peculiarly healing to ulcerated surfaces, and may be applied in the form of an ointment. Hydrastina also possesses antiperiodic properties.

The two principles united, and known as "neutral," are better adapted for general purposes, as possessing the properties of the crude hydrastis. The neutral article possesses tonic and laxative properties, and is indicated in those cases of dyspepsia attended with torpor of the bowels, and may be given in doses of one or two grains once or twice a day, as may be required.

The muriate of hydrastina (hydrastia mur. of commerce) has a specific influence over ulcerated surfaces, and in certain specific inflammations, as gonorrhea, chronic ophthalmia, and This is also an important remedy in cases other like diseases. of chronic inflammation of the mucous surface of the digestive apparatus. I make much use of it as an escharotic, combined with other articles of that class, in cancer, nervous and indolent ulcer, etc. Combined with sanguinarin and the chloride of zinc, the muriate of hydrastina makes one of the most certain caustics to enucleate small excrescences, nevi, and small cancers that I have ever tried; and while this combination removes the above morbid productions, it leaves a healthy, granulating surface, which soon heals. As an internal remedy, it may be prescribed as a certain tonic, either alone or combined with fraserin, gentian and calumba. The dose is from half a grain to one grain every three or four hours, triturated with lactin.

Chelone Glabra-Balmony, Snakehead.

This is a native North American plant, of which there are several species. It grows in most parts of the United States, in wet situations, and blooms from July until late in the autumn. The leaves are used, and they should be fresh. The leaves are inodorous, but of an intensely bitter taste. Alcohol or water extract its virtues. It soon deteriorates.

Medical Properties.—Chelone glabra is a tonic in small doses, and as a tonic it is quite positive in action. In addition to its tonic powers, it possesses cathartic properties, and acts on the secretory functions of the liver. I have tested this article in my own case. I was troubled with indigestion and torpidity of the liver, and I took the chelonin a few days and found that it acted well as a tonic and cholagogue. My appetite increased, and digestion improved regularly but gradually. At the end of about two or three weeks I added the tinctures of euonymus americanus and eupatorium perfoliatum to the tincture of chelone glabra, and this, in small doses, acted as a prompt cholagogue and tonic, and by increasing the dose up to two or three drachms it gently purged, but without griping.

As a mild tonic and cholagogue, I often use the tincture of chelone glabra in cases of dyspepsia with the best results. It is also a very mild and unirritating tonic after fevers and other prostrating diseases, increasing digestion, and nutrition, and supplying the waste of worn-out tissue. It is valuable in many cases of dyspepsia where there is torpidity of the liver and constipation; and in such cases it may be combined with leptandrin and euonymin, or with chionanthin and berberis vulgaris, (the barberry), or with ginseng, (panax quinquefolium).

The chelonin is now prepared from the leaves, but, like many other articles of the materia medica, it is too often prepared from the old, inert plant, and is consequently worthless. As it is so difficult to get pure extracts, I use the saturated tincture of the fresh leaves, and I make it myself. No phy-

sician can ever succeed with worthless extracts prepared by druggers who have no pride in the success of the medical profession.

The tincture may be made by adding one pint of alcohol to eight ounces of the freshly-dried leaves; steep ten days; strain. Dose, one to two drachms three or four times a day.

Chelonin.—Chelonin is the active principle of the chelone glabra, or balmony. It has a special affinity for the mucous membrane of the stomach and bowels. Its peculiar impressions are very manifest upon the mucous tissue. In over-doses it generally produces nausea, vomiting and purging, but in medical doses, repeated every three or four hours, it increases the appetite and promotes digestion. In all cases where the dynamic power of the digestive apparatus is enfeebled, chelonin manifests a very marked influence in restoring it to a normal state. In those cases of indigestion caused by an enfeebled state of the muscles of the stomach, it may be combined with extract or tincture of nux vomica, or, when caused by deficient action of the gastric glands, with hydrastin and alnuin. In many cases, generally called, and treated for, bilious habits, which are really cases of imperfect digestion, chelonin is a potent remedy; one or two grains administered in a cold infusion of hydrastis or gentiana ochroleuca three or four times a day, will soon restore the wonted power. I had two cases the past summer, following flux, in both of which there was chronic gastritis and the most persistent indigestion, which was soon relieved by chelonin hydrastin, and oxide of bismuth. It may be combined with helonine in diabetes, and much aids its action. The dose is from one to two grains every four hours.

Berberis Vulgaris—Barberry.

The berberis vulgaris is a shrub from four to eight feet high, with long bending branches, which are dotted. This plant is a native of Europe, but has been naturalized in the United States,

especially in New England. It is often confounded with the hydrastis canadensis. This article possesses tonic, combined with cholagogue properties. It is used with good effect in jaundice, and may be combined with chionanthus, equal parts of the saturated tinctures; dose from half a drachm to one drachm, every three hours. As a mild tonic and cholagogue, it may be combined with any of the pure bitters in cases of dyspepsia, with torpidity of the liver, and constipation of the bowels. In large doses, it acts on the bowels like rhubarb. The extract, berberine, acts very promptly as a purgative, in doses of four or five grains; but in one or two grains, it is a mild tonic upon the stomach. The tincture may be made by adding eight ounces of the fresh root to one pint of alcohol (76°). Dose from half a drachm to one drachm every three or four hours. The fluid extract is officinal, and may be given in doses of ten or twenty drops every three hours. The American species is also a tonic, and may be used with good effect. In large doses it gripes severely.

Anthemis Nobilis-Chamomile.

Anthemis nobilis is a well-known plant, now cultivated in gardens. It has a strong fibrous root; the stems, in a wild state, are prostrate, but in gardens they are more erect, about a span long, round, furrowed, hollow and downy; the leaves are of a pale green color, pinnate, sessile, with thread-shaped leaflets. The flowers are of a yellow color. It is indigenous to Southern Europe. The flowers are the parts used; they have an aromatic, bitter taste, and a peculiar odor; they yield their properties to alcohol and water.

Medical Uses.—This is an old remedy, but nevertheless it has its place in the list of medical agents. The fluid extract is a valuable tonic in dyspepsia, and irritable stomachs. There are but few, if any, tonics that are as acceptable to a feeble stomach as this, under all circumstances. It is also a very gentle diaphoretic, where such a remedy is desired. In over-

doses it proves emetic, and some years ago it was often given in warm infusion to assist the action of emetics, but is seldom used for that purpose now.

The flowers contain a volatile oil, which, as an aromatic, may be used as a remedy in flatulency. I seldom use the flowers for any other purpose except that of a tonic in indigestion; in that condition they answer a good purpose. I usually employ the saturated tincture of the fresh-dried flowers, frequently combined with the tinctures of chelone glabra and hydrastis canadensis; the anthemis improves the taste of these and renders them less liable to disagree with a delicate stomach, at the same time preventing flatulency. The dose of the fluid extract is from half a drachm to one drachm. The dose of the saturated tincture is one to two drachms every three or four hours, as the case may demand.

Euonymus Atropurpureus-Wahoo, Burning Bush.

Euonymus possesses tonic powers and is mildly aperient in large doses, but in small doses it tones up the entire nutritive Where the liver and stomach are both feeble, there is no better article to combine with the other direct stomach tonics. It aids in improving digestion, and at the same time acts gently on the secretory functions of the liver. I often combine it with hydrastis, calumba or gentian. It is mildly antiperiodic. It suits well to combine with ptelea and bark, in chronic cases of chills. I have often derived much advantage from the above combination in long-standing cases. It is also a good tonic in tuberculous consumption with great debility, attended with night sweats. It has remarkable power over such cases, and some physicians have supposed that it was really curative. For this purpose it may be combined with the hypophosphites and cod liver oil. In hypertrophy of the liver I recommend euonymus with chionanthus, equal parts of the essential tinctures; dose from thirty to sixty drops every three hours. This is a fine tonic in cases of convalescence, and may be combined with hydrastis, equal parts of the saturated tincture or the fluid extracts, given in doses of twenty to thirty drops three times a day. The tincture may be made by adding six ounces of the fresh bark to one pint of alcohol (76°). Dose from twenty to sixty drops; dose of the fluid extract the same.

Euonymin.—Euonymin is the active principle of the bark of the euonymus atropurpureus. It is a dark-brown powder, and has a great affinity for hydrogen; hence it can be kept in a powdered state only by being kept dry, and excluded from the air. Euonymin has a peculiar affinity for the liver; its specific tendency seems to be to make bile, or to stimulate the liver to secrete it. In large doses, repeated every three hours, and continued for several days, the bowels will act from an increase of bile; but in small doses, say half a grain, it is not apt to act as a cathartic. I regard it as a feeble cathartic. In the crude bark there are important effects, besides its action upon the liver. The crude article, or the fluid extract, has a tonic and expectorant effect.

Euonymin, combined with other hepatic remedies, is very prompt as a cholagogue. I use the following combination a great deal, viz: Euonymin ten grains, podophyllin five grains, dioscorin ten grains, leptandrin twenty grains, colocynthin five grains, conserve of roses, q. s., made into pill mass; of this, two or three grains may be given night and morning to restore the action of the liver; in jaundice I add some twenty grains of chionanthin to the mass. The above combination I use a great deal, and find it a superior cholagogue medicine, and in four or five grain doses it acts as a cathartic. In summer fevers it is an admirable cathartic, and in habitual constipation, it is equally appropriate. The usual dose of euonymin is from one to two grains, given twice or thrice a day. Triturated, one grain to ten of lactin, the dose of the trituration is from one to five grains, administered twice or thrice a day. The fluid extract is a reliable preparation.

Ptelea Trifoliata-Wafer Ash.

Ptelea is a pure, unirritating tonic to the digestive system, and can be tolerated like hydrastis, when other tonics are liable to be rejected. It has quite a soothing influence on the mucous membrane of the stomach, and hence, is an admirable tonic in convalescence from fevers, and other debilitating diseases. It is considerably antiperiodic and well suited for cases inclined to relapse, or for long-standing cases of chills. As a simple bitter tonic, it is scarcely surpassed by any article in the materia medica, except hydrastis.

If taken in large doses for a considerable time it is liable to determine to the skin, and pustulate the surface. During the late war, when quinine was scarce, I used the fluid extract of ptelea with good effect in chills and fever. It is not as prompt to arrest the disease as quinine, but is a good remedy where quinine cannot be procured; I gave it in drachm doses every two hours. I have often used it with euonymus in prostrated cases of consumption with good results. I think that this combination possesses advantages in such a condition of the system, not to be derived from other tonics. In many cases of asthma, associated with dyspepsia, a combination of ptelea, alnuin and pepsin will answer a good purpose.

Ptelin.—Ptelin is the concentrated medical principle of ptelea trifoliata. Ptelin is a tonic and antiperiodic, and seems to exert a stimulant and exciting influence upon the glandular system, with a peculiar tendency to the cutaneous surface and mucous membranes. If given in over-doses, and continued for a considerable time, it produces an eruption upon the skin. Its tendency to the mucous surface renders it an important adjuvant in the treatment of chronic diarrhœa and ulceration of the mucous coat of the bowels and stomach. As a tonic it is a very appropriate remedy in dyspepsia, and may be combined with fraserin and hydrastia, with good effects. I have known the crude article to be much used here by non-professionals for dyspepsia, and with the best success.

As an antiperiodic ptelin stands next to quinia in point of potency. During the rebellion I happened to have several bottles of the fluid extract and used it in lieu of quinine, and my conclusions from my experiments were as follows: The ptelin does not break up the attack of periodical fever as soon as quinine, but seems to tone up the system so as to fortify it against a relapse, especially if it is continued several days after the paroxysms are suspended. I have used the crude article and the fluid extract very extensively, combined with the fluid extract of euonymus and the hypophosphites, in phthisis pulmonalis, and have derived much benefit from them in many cases. The above combination I have found a good restorative, not only in pulmonary affections, but in many other cases where debility existed. I have been actually astonished at the corroborant powers of these medicines in cases of pulmonary diseases.

I was consulted by a physician, in an adjoining county, for his sister, Mrs. P., a lady who had been married some fifteen years, and was the mother of eight boys. She was of nervous temperament, had been troubled with severe cough for several years, with profuse expectoration, and pain under the left nipple, especially during lactation. On examination I found a large cavity just beneath the left mamma, with hectic fever, night sweats, and diarrhea. I prescribed four ounces each of the fluid extracts of ptelea and euonymus, in fourteen ounces of the syrup of hypophosphites; dose, half an ounce, three times daily. Under this treatment she rapidly convalesced, regained her health and strength, and is now clear of all symptoms of any disease of the lungs. I am not certain that ptelin fully represents the crude root. The dose is from half a grain to two grains.

Aletris Farinosa-Unicorn Root, Stargrass, Starwort.

Aletris is often confounded with helonias dioica, but is distinct from it in its botanical characteristics. The aletris has

a perennial root, with radical leaves, sessile, lying flat on the ground, ribbed, broad, smooth, lanceolate; the large ones are about four inches in length. The flower stem is about three to four feet high, erect and simple, bearing a bell-shaped flower, which, when it is old, has a wrinkled, mealy appearance. The fruit is a triangular capsule. It grows in low, sandy land, and at the edges of woods. Its flowers are white, and appear from May to August. The root is the part used; it is hard and of a bitter taste, and yields its virtues to alcohol, or alcohol and hot water.

Medical Uses.—Aletris is a good stomach tonic, giving tone to the digestive and appropriative systems. It has a direct effect upon that depraved condition of the digestive system that leads to diabetes, and has, in my hands, done good service in several cases of this very obstinate disease. It also has a direct effect upon the uterus, and aids in preventing abortion. I have long used it for this purpose. The fluid extract or saturated tincture should be used. The dose of the fluid extract is from ten to fifteen drops; the dose of the saturated tincture is from twenty to thirty drops every four hours.

Aletrin.—Aletrin is the active principle of aletris farinosa. This is a tonic upon the whole system; and, as such, it is valuable in cases of indigestion or mal-assimilation from an enfeebled condition of the muscles of the stomach and alimentary canal, and in cases of general debility of the muscular system. But one of its most marked properties consists in a specific tonic influence it exerts upon the female generative organs, imparting tone to the uterus, thereby promoting a healthy function of the same, and thus it often prevents that tendency to miscarriage which seems to be rather habitual in some females; for which purpose, it may be combined with the fluid extract of the viburnum prunifolium (black-haw) in one-grain doses, repeated every four hours for several days. In many other morbid conditions of the uterus, as chlorosis, amenorrhoea, dysmenorrhoea, prolapsus uteri, and engorgement

of the uterus, aletrin will be an important remedy, and may be combined with iron and other articles, as indications may dictate. In chlorosis it may be combined with iron, and in amenorrhœa with caulophyllin and senecin; in dysmenorrhœa with gelsemin and senecin, say six grains of gelsemin, one drachm of senecin and half a drachm of caulophyllin to six ounces of simple syrup; dose, one to two drachms every four hours. In leucorrhœa, associated with ergot and hamamelin, it is one of the most certain internal remedies. The dose is from one to three grains. The triturated article is preferable.

Collinsonia Canadensis-Stone Root.

The fluid extract of collinsonia, made from the fresh root, is a specific in ministers' sore throat. It should be given in doses of half a drachm in a little simple syrup or honey, every three or four hours. It relieves the hoarseness in a few days, and if continued, will correct the congestion of the vocal organs, upon which the hoarseness depends. In chronic bronchitis and laryngitis, it allays the irritation and lessens the cough. It is also a tonic to the digestive apparatus, giving appetite and increasing the flow of gastric fluid, thereby increasing the digestive process. It seems to impress the whole nutritive system through the pneumogastric nerves, giving tone and energy to all parts of the system supplied by them. In this way it has remarkable influence over certain morbid conditions of the heart, as sympathetic palpitation, arising from a feeble state of that organ. It is favorably spoken of as a remedy in hæmorrhoids. Prof. Scudder says: "It is a specific in the early stage of hæmorrhoids, and will sometimes cure them in the advanced stages of the disease." I use it very often in the above conditions, and in many cases where there is enfeebled innervation of parts that derive their supply of nerve power from the pneumogastric. The dose of the fluid extract is from twenty to thirty drops; that of a saturated tincture is the same

Collinsonin.—Collinsonin is an active concentrated principle of the collinsonia canadensis. This article, though recently introduced to the medical world, is receiving much attention as a remedy in valvular disease of the heart. It is also regarded as an efficient tonic to the lymphatic system, and as a very marked tonic to the sympathetic nerves; and hence may be prescribed in many diseases where debility of the lymphatics exist, or where there is irritation or enfeebled innervation of the sympathetic system. In that peculiarly irritable condition of the larvngeal mucous membrane of the vocal cords termed ministers' sore throat, from personal experience, I can affirm that this is a prompt remedy. In chronic bronchitis, collinsonin will be found also to exert a beneficial influence, and may be combined with stillingin and sanguinarin. In dyspepsia, caused by or associated with deficient innervation of the stomach, this, with extract of nux vomica, will be found an important remedy. In functional heart diseases, where from organized exudations the valves are obstructed, collinsonin has the specific power of breaking up that organization and thereby removing the obstruction; and it acts the same way in chronic affections of the endocardium, pericardium and pleura. The dose is one to two grains three times a day; triturated in lactin, one to ten, the dose of the trituration is ten to thirty grains three times a day.

Prenanthes Alba, Nabalus Fraceri—Rattlesnake Root, Gall of the Earth.

This plant needs further investigation, as its uses are not well known. It has been claimed, like many other plants, to be an antidote to the bites of serpents. It is much used in Georgia, by the people, as a stomach tonic, and they claim that it cures dyspepsia. It is also used in dysentery. It influences the nervous system directly, and promises to be of much use as a tonic in atonic dyspepsia, and general debility. It has a large quantity of milky-like juice in it, and an infusion applied

to the bite of a serpent, while the tincture is taken internally, is said to be very positively antidotal to rattlesnake bites. The dose is thirty to sixty minims.

Silphium Perfoliatum-Indian Cup.

This remedy, when alternated with the bromide of ammonium, has acted well in my hands. With the above remedies I have cured some cases of asthma of long standing. In fact, the above remedies have proven more successful in my hands than any other treatment for asthma. In all atonic conditions of the stomach and duodenum, this will be found a mild and certain tonic. It manifestly increases the appetite and improves the digestive powers very rapidly. I have used the extract, but I think it represents only the antiperiodic properties of the remedy. In doses of two or three grains, every two hours, or one grain, every hour, it is a mild antiperiodic, and may be taken where quinine is inadmissible, or not at hand. The most efficient preparations are the fluid extract and the essential tincture. The essential tincture may be made from the fresh bark of the root, eight ounces to one pint of alcohol (76°). Dose, from thirty to sixty drops, three times a day. It grows plentifully in several of the United States. It is found in sandy soil in many counties in Georgia. It should always be made while fresh, as it, like most other vegetable remedies, soon loses its virtue. The fluid extract is a good remedy, and may be given in from twenty to sixty drop doses.

Eupatorium Perfoliatum-Boneset.

Boneset, in small doses, is a pure bitter tonic. In the form of a warm infusion, given as freely as the stomach will tolerate, it determines to the sudorific glands, and acts as a mild diaphoretic. The tineture, in moderate doses, acts as a good tonic upon the digestive system, having a direct tendency to the secretory surface of the liver. It has a direct effect upon the great sympathetic nervous system, and consequently it increases the power of all the vegetative functions. It has hitherto been

used in the form of infusion, and hence its real virtues have not been derived. In the form of a saturated tincture made from the green leaves just wilted, it is a very positive tonic. The tincture is made by just covering the freshly-wilted leaves, cup up, with alcohol (76°). The dose is from one to two drachms, three times a day. Eupatorium is also an antiperiodic of considerable power. I have known the common people to cure chills and fever with it frequently. It is a slow remedy for chills, but will cure it in time. As a mild tonic I have often used it in typhoid fever, in the form of cold infusion, in half-ounce doses, every two hours.

Eupatorin—Eupatorin has been prepared, but that which I have tried did not represent the crude article. It is used in doses of one or two grains.

Chionanthus Virginica—Old Man's Beard, Fringe Tree, White Ash.

Some thirty-two years ago, by mere accident, I was led to test the tonic and cholagogue powers of this humble shrub. I had been very badly salivated for an attack of simple bilious or intermittent fever, by my preceptor, and it resulted in an attack of jaundice, for which I was again salivated several times, with the result of an increase of the jaundice. I now lost all hope and thought I was about to die, for I had tried six or eight of the best physicians of Georgia whose remedies were always mercurials, which only increased the disease. I had, after trying mercury for four or five months, given up in despair. About this time I was induced by a fellow-student to try the "old women's remedy," chionanthus (Old Man's Gray Beard, as they called it), which grew plentifully upon the sandy land near Augusta, Georgia, where I was then attending lectures; and as the faculty had utterly failed to cure, or even to benefit me, I concluded to try it.

I procured a small quantity, and made a tincture in gin, and took a table-spoonful before each meal. In a few days my

appetite began to improve, and my skin very rapidly cleared, and in some ten days my jaundice was gone; my skin was clear of bilious hue, and I felt like another man. As I found my appetite and digestion improving so much under the use of the chionanthus, I continued its use for several weeks, until I left Augusta and went to western Georgia, where I could not get it, for it was not known then to regular physicians or druggists; but I had derived so much advantage from it that I determined to investigate its properties thoroughly, and it was not long before an opportunity was presented. I met with many cases of jaundice, and found the remedy so prompt to remove it, that I published my experience in the Eclectic Medical Journal of Philadelphia, and I have since used it in a great many cases of debility connected with torpidity of the liver and jaundice. For jaundice it is a specific, and it is an admirable tonic for dyspepsia and general debility. It is a fine remedy for congestion of the uterus, for which it may be combined with helonias, or it may be conjoined with any of the tonics before named. I now use a saturated tincture made by adding eight ounces to one pint of alcohol (96°). Dose, one drachm, three times a day.

Chionanthin.—Chionanthin is now prepared, but I have not tested it sufficiently to decide on its merits.

Apocynum Cannabinum—Indian Hemp.

This and other varieties of apocynum grow in the United States, and are known by the common names of Dog's-Bane, Indian Hemp, etc. This article is not much used as a tonic, though it possesses active tonic properties. In large doses it is emeto-cathartic; in small doses it is diuretic and diaphoretic. I use it a great deal in atonic dropsy; its tonic and diuretic properties make it an appropriate remedy in that disease. I use a saturated tincture of the freshly-dried root, in doses of ten to fifteen drops, combined with digitalis, every three or four hours, in dropsy, with the happiest effects. As a tonic in

dyspepsia, this article often answers a valuable purpose. It acts considerably on the liver, and is a mild cathartic; hence, in cases of inaction of the liver, with constipation, it makes a good addition to other tonics, as also in debility of the digestive and assimilative organs. In that atonic state of the bloodvessels that favors the rapid exudation of serum, and thereby causes dropsy, this remedy acts with more promptitude than any other in the materia medica. It is not only a tonic to the liver and stomach, but also to the kidneys and blood-vessels. As a tonic to the capillary system it is a good remedy in leucorrhœa, especially where there is a profuse watery discharge. The tincture should be made by adding eight ounces to one pint of alcohol (76°). Dose, from five to fifteen drops, every two or three hours.

Apocynum Androsemifolium—Milkweed, Dog's-Bane, Bitter Root.

The apocynum androsemifolium is a lactescent plant, growing to the height of three to five feet, with a tough fibrous bark. The root is perennial, large, and intensely bitter; the leaves are petiolate, opposite, ovate; entire, smooth above, and slightly pilose beneath. The flowers are in cymose racemes, longer than the leaves; nodding, (few-flowered,) with minute bracts on the peduncles. The calvx is small, five-cleft; the corolla is flesh-colored, campanulate, and divided into five spreading, acute segments; the stamens are five, with short filaments, and long, sagittate, connivent anthers—there are five glandular appendages, alternating with the stamens; the ovaries are two, ovate, and supporting two sessile stigmas; the fruit is in the form of a pair of slender, acute, drooping follicles, containing numerous oblong, imbricated seeds, attached to a central torus, and furnished with a long, downy, silk-like pappus. It grows in most parts of the United States, in sandy soil, on hillsides or in woods, flowering in June and July.

The root is the part used, which is large, lactescent, and of

an intensely bitter taste; the active portion is the bark of the root, which forms nearly two-thirds of it. It yields its properties to hot water and alcohol. It much resembles the A. cannabinum, but may be easily distinguished by its leaves and bloom, the bloom of the A. cannabinum being smaller, and upon upright stems, and forming long and slender follicles. The bloom of the A. cannabinum appears from July to September. They should not be confounded, as doubtless they have been, for their medical properties very essentially differ.

Medical Properties.—Various medical properties have been attributed to the apocynum androsemifolium, but most of these are its toxic effects. In very large doses it produces emesis; in somewhat smaller doses it produces catharsis; but these are not the effects to be desired from this plant.

In small doses, the tincture or fluid extract is a valuable tonic to the digestive apparatus. I have frequently used the tincture of this article, combined with menispermum, with the most positive results, in dyspepsia accompanied with constipation; and I have frequently combined the powdered bark of the dried root with leptandrin, podophyllin, and rhubarb, in torpor of the bowels and liver, with the most successful results—acting on the liver and removing the constipation in a few days.

In once using it thus in a case of constipation, attended with intense headache, in an old lady, she called my attention to the fact that it readily relieved the headache, which I supposed it accomplished by simply unloading the bowels; but after this, in other cases of headache not thus connected with constipation, it acted with equal promptitude. I have frequently prescribed it in nervous headache since then, and often find it the most prompt remedy I can administer. It is highly praised by some physicians in rheumatic gout of the joints. There is no doubt that it would counteract a rheumatic tendency by its tonic effects upon the digestive system, just as macrotis does. It does not have the same effect in dropsy as A. cannabinum. The dose of

the fluid extract is ten to twenty drops, and of the saturated tincture, fifteen to twenty-five drops, repeated every three or four hours.

Populus Tremuloides-Aspen Poplar.

All of this family of trees possess medicinal virtues, but the white or the aspen poplar, is perhaps the best tonic. It has been used in powder, or in the form of weak tincture, and its virtues have, therefore, not been obtained. A saturated tincture of the fresh bark will act as a mild but certain tonic. It, like the willow bark, has acquired some reputation as an antiperiodic, but that property is not very powerful. It may be used with cornus florida and Peruvian bark in chronic cases of chills.

As a stomachic bitters, it is a very good remedy in many cases. It improves the appetite and strengthens digestion; it acts much like calumba; it has some slight tendency to the urinary organs. Prof. Paine says: "In doses of five to ten grains of the populin, it produces a warm glow over the body and copious discharges of urine, and if repeated every two hours, it causes nausea, vomiting and purging of bilious matter, etc." But he also says: "In doses of one or two grains three or four times a day, it acts as a tonic to the stomach, bladder, urethra and bowels, more especially upon the bladder; and in diseases of the bladder, urethra and prostate gland, I have derived the greatest benefit from it." But my trials with populin did not result so satisfactorily. I have found the saturated tincture the best remedy, which is made by covering the bark in alcohol (76°). Dose thirty to sixty drops, every three hours.

Populin.—Populin is the active medical principle of the populus tremuloides. Its properties are tonic, vermifuge and antiperiodic. In doses of one to two grains, repeated every four hours, populin acts as a tonic upon the stomach and bowels, and is of much utility in feeble conditions of the stomach, etc. In cases of enlargement of the prostate gland, populin is said to be one of our best remedies, but I have not as yet used it in a

sufficient number of cases of that disease to satisfactorily determine its virtues; I have recently used it in two cases, but I do not regard such partial trials of a remedy a sufficient test upon which to predicate an opinion. It is quite efficient in catarrh of the bladder, especially when combined with the fluid extract of polygonum punctatum (water pepper, or smart weed), and given every three or four hours, say two grains of populin to half an ounce of the fluid extract of polygonum.

In cases of chronic ague, populin two grains, quinine two grains, salicine two grains, ptelin two grains, given three or four times a day, is very prompt in breaking up that peculiar morbid train of associations of the nervous system upon which this disease depends. In dyspepsia, one grain of populin, half a grain of muriate of hydrastia, one grain of alnuin and half a grain of apocynin, given every four hours, is prompt to relieve this protean disease. The ordinary dose as a tonic upon the digestive organs should be much smaller than is required as an antiperiodic, say one to two grains three times a day.

Populin, combined with helonine, is, par excellence, the treatment of granular degeneration of the kidneys, for which purpose one grain of each may be given three or four times a day, in simple syrup. As a vermifuge, half a grain of populin, the same quantity of santonin, and one-fourth of a grain of podophyllin, triturated in about ten grains of lactin or white sugar, and given once, twice, or thrice a day, so as to gently move the bowels, will speedily expel worms from the alimentary canal; this is one of the best vermifuges I have tried.

As an antiperiodic populin is very reliable, especially in chronic or long-standing cases of ague, where from long continuance, there is great prostration of all the vital powers. In such cases I usually combine this remedy with cornin, cyanuret of iron, ptelin, and salicine, in doses to suit the age and condition of the patient, and I have found this combination unsurpassed in such cases. In some instances I combine the

above remedies with the fluid extract of Peruvian bark, and find that these medicines not only arrest the disease, but give tone to the nervous system and prevent a recurrence of the disease. Populin should always be triturated; the dose is from half a grain to five grains, crude.

Helonias Dioica-Unicorn Root.

Helonias is a very positive tonic, and may be given in dyspepsia and debility, but its most positive tendency is to the uterus and its appendages. It is a good tonic to the uterus in that state of debility causing leucorrhea. It is also a valuable remedy for the state of irritability of the uterus predisposing to miscarriage. It is superior to aletris farinosa, for which it is frequently mistaken. I have often used a saturated tincture of the freshly-dried root combined with viburnum prunifolium (black haw) or viburnum opulus (high cranberry) with good effect in threatened miscarriage. Sometimes it seems to act finely in cases of diabetes, but I am unable to point out the cases in which it is most likely to act; I think it is those in which there is a large excess of albumen in the urine. I have cured several cases with this and other appropriate remedies. It has been highly praised by some writers, in Bright's disease —albuminuria, but I cannot testify to its virtues in this disease; but in female affections and diabetes, I can testify to its very prompt action. I use the saturated tincture, made by adding four ounces to one pint of alcohol (76°). Dose from thirty to sixty drops every three or four hours.

Helonine.—Helonine is the active principle of the helonias dioica. Helonine in very large doses, say from five to ten grains, produces emeto-catharsis and griping of the bowels, attended with excessive discharge from the salivary glands. In doses of half a grain to one grain, it has a specific effect upon the kidneys, bladder, ureters, urethra, uterus, vagina, and the assimilating organs. In diabetes I have used this remedy with the best success. I have cured several cases with the

crude article combined with alum, and I have found no combination equal to this. It seems to correct that morbid condition of the kidneys upon which the disease depends, in a few days; if it fails, I would add iron, quinine and cod liver oil in due proportions. In albuminuria, given in one-fourth grain doses every three hours, it will exert a salutary effect upon that disease. Helonine is an important tonic to the uterus, and in that peculiar morbid condition of that organ giving rise to frequent miscarriages, this remedy, in combination with viburnin (extract of black haw), will seldom fail to arrest the threatened abortion, if given in time. I have used helonine in cases of habitual miscarriage, and generally with the best success. It is also a tonic upon the assimilating organs. It may be given in doses of from half a grain to a grain and a half every four hours.

Strychnos Nux Vomica-Nux Vomica.

Physiological Action.—Nux vomica does not impair the cerebral functions, even in lethal doses, but it quickly attacks the spinal cord, producing violent and very distressing tetanic spasms. In large doses strychnia paralyzes the efferent motor nerves, causing loss of motor power in the voluntary muscles. It stimulates the vaso-motor and probably the respiratory centers to some extent.

Large doses of strychnia cause rise of arterial pressure, and contraction of the capillaries. In large doses, it produces dyspnœa, and when a lethal dose has been taken, it produces spasmodic fixation of the diaphragm and respiratory muscles of the chest, and thus terminates the life of the victim.

The dose of strychnia is from one-twelfth to one-thirtieth of a grain; the dose of the normal liquid of nux vomica from one to three minims. In small doses, like other bitters, nux vomica promotes the flow of saliva and gastric fluid, and hence, greatly increases digestion. It also increases peristalsis. It slightly accelerates the heart's action, and this vascular vigor gives greater energy to the various functions of the body.

But when lethal doses of nux vomica, or its salts, have been taken, very characteristic phenomena soon follow. At first, there is a sense of constriction of the fauces, jaws, and stomach, pains like those of an electric shock pass through the limbs, the voluntary muscles start, the pupils dilate, and finally tetanic convulsions ensue, in which nearly all the voluntary muscles are engaged. The head and the extremities jerk and twitch, and then suddenly a tonic convulsion takes place. The limbs are now extended, the hands are clinched, the toes and feet incurvated, the head curved backwards, and the body arched and rigid. The muscles of the abdomen are tense and hard, the respiratory muscles fixed, and the body, curved like an arch, rests on the occiput and heels. The face assumes a hideous and ghastly aspect—the risus sardonicus. The oxidation of the blood is suspended by the arrest of the respiratory movements, and the skin becomes cyanosed. Involuntary discharges of urine and fæces may occur, and there are often erections of the penis, with seminal discharges. The paroxvsms relax, and nothing remains of them except muscular soreness and fatigue, and a sense of impending dissolution. These intervals may last some time, provided the victim remain quiet, but very slight peripheral irritation quickly brings on the spasms. The mind remains intact, until the close of life, or until carbonic acid poisoning sets in. These paroxysms are now prolonged, and rapidly succeed each other, and grow more and more severe, until death occurs, usually by fixation of the respiratory muscles.

There is great similarity between the phenomena of strychnine poisoning and the symptoms of traumatic tetanus. In strychnia poisoning the muscles of the jaw are not first thrown into spasms, and are not always rigid during the spasm. In traumatic tetanus, trismus is one of the first symptoms. In strychnia tetanus, after the spasm has continued from one to

two minutes, there is usually more or less relaxation, but in traumatic tetanus rigidity of the muscles continues. In strychnia tetanus, the spasms increase very rapidly in severity, and last from a few minutes to one or two hours; but traumatic tetanus advances slowly, and continues for several hours, sometimes for days, and in some cases even for weeks.

After death the muscles may at first be rather relaxed, but soon become rigid, the feet are turned in, the fingers firmly clinched, or the body may maintain the position of opisthotonos, the position it was in at the moment of death. The spinal meninges are usually found congested, and so are those of the cerebrum, and there may be dilatation of the vessels and sanguineous extravasations in the gray matter of the cord, especially in the medulla oblongata.

The smallest quantity of strychnia that is reported to have proved fatal in the adult, is half a grain. Very few persons can take one-twelfth of a grain without feeling muscular twitchings, and one-sixth of a grain has proved fatal to a child two years old.

Nux vomica is a nerve stimulant when the nerve centers are free from congestion and inflammation. While it influences the cerebro-spinal system powerfully, yet it so impresses the great sympathetic as to make it an appropriate remedy in all conditions of atony of the vegetative functions, when not associated with either inflammation or congestion of these centers. In large doses it is an active poison, acting on the cerebro-spinal centers, producing violent muscular contractions and thereby death. In small doses it usually acts as a tonic, increasing the secretion of urine and sometimes acting on the bowels and improving digestion and appropriation, and hence it may be denominated a tonic, in the strictest sense of the word. We have already spoken of this article under the head of Stimulants, but it has, besides its stimulating effect upon the nervous system, a tonic power so remarkable as to require notice

In very small doses it may be employed to arrest nausea and vomiting from irritability of the stomach, caused by debility; for the same purpose it may be used in cholera morbus and cholera infantum. In congestion of the liver and inaction therefrom, it acts promptly. I have often used it in cases of dyspepsia associated with torpidity of the liver, and have derived much benefit from its use. I have given it, alternated or combined with quinine, in summer fevers, when the liver was congested. In some cases of diarrhoea, with debility, we use nux vomica with good effect. In cases of colic, from atony, it frequently gives speedy relief. In all conditions of deficient innervation, not connected with congestion and inflammation, nux vomica will give satisfaction. It will relieve retention of the urine from this cause. In many cases of constipation of the bowels from the same cause, I have found nux vomica the only remedy to relieve.

In cases of impairment of muscular power, and a deficiency of co-ordination of muscular movement, nux vomica is a prompt remedy. It has long been used as a remedy in paralysis, and often to the very great detriment of the paralytic. It should never be used in paralysis as long as any inflammation exists, nor should it be used if there exists congestion of the cerebrospinal centers. As a simple tonic I use it a great deal in dyspepsia, and in inaction of the liver, and find it a very prompt remedy. I prefer the essential tincture, made by adding six ounces to one pint of alcohol (76°). Dose, from one to five drops, three times a day.

Strychnine.—Strychnine is the concentrated active principle of the nux vomica. This article should not be confounded with the alkaloid strychnia, which possesses only a part of the properties of the nux vomica. Strychnine, like nux vomica, has a specific tendency to the white nerve tissue, and thus it has a controlling influence over the molecular arrangement of the nerve matter, and thereby regulates the development of the forces of that matter. It excites the white nerve tissue so as

to distribute the force sent from it to the gray nerve matter, to the different organs of the economy. Its value is apparent at once, in all those diseases where there is an irregular distribution of nerve force, dependent upon a disordered condition of the conducting power; such, for instance, as paralysis, caused by either serous effusion or sanguinous apoplexy, or by inflammation of the neurilemma. But in cases of paralysis from an altered pathological condition of the white nerve tissue, and deficiency of nerve power generated by the gray nerve matter, this article is not applicable, but will aggravate the disease by exhausting the deficient nerve force. This is why it often fails to cure paralysis, and hence the conflicting opinions in regard to its utility. It is a tonic upon the digestive organs and promotes assimilation, and hence is a good remedy in dyspepsia. The usual dose is one-sixteenth or one-thirtieth of a grain every four hours.

Ignatia Amara-St. Ignatius' Bean.

Some writers describe this remedy as identical with nux vomica, but my experience with the two remedies has convinced me that they are quite different in some particulars. They both act directly upon the spinal cord; hence in all conditions of the system connected with impairment of innervation, we may give either of those remedies with success; but neither remedy will do where there is inflammation or congestion of the spinal cord, until this is removed by belladonna or solanum nigrum. In paralysis, without inflammation or congestion of the cerebro-spinal system, where there is a mere want of muscular power, or where there is a want of ability to co-ordinate muscular movement—a mere torpor of the nerve centers, then either ignatia or nux vomica will give relief.

In constipation, from nervous depression, I find the ignatia as prompt as nux vomica; and in dyspepsia, from depression of the gastric nerves, ignatia acts as promptly as nux vomica. In torpor of the liver, with pain in the region of the liver, it acts promptly. One of the main uses that I have made of ignatia is in those old confirmed cases of nervous or sick headache, occurring at intervals of six or seven days, or sometimes oftener, where the patient uses coffee or tobacco. In such cases, small doses three times a day frequently ward off the attacks. I have derived much benefit in my own person from the ignatia. This effect it doubtless produces by its action upon the circulation of the brain. The dose of the tincture is from three to five drops.

Fraserin.

Fraserin is manufactured from the fraseria carolinensis. Profs. Jones and Scudder, in their Materia Medica, say that "The fraseria is a mild, pure, simple bitter, and a very valuable tonic, and may be prescribed in all cases where a simple, pure tonic is indicated." Prof. Rafinesque says: "It has cured a widespread gangrene of the lower limbs, by internal use and external application." This last fact proves that it possesses antiseptic as well as tonic properties. It is also a mild aperient, and may be used where such articles are indicated. Fraserin seems to have a happy effect upon the mucous coat of the whole alimentary canal. The fresh root in large doses, will cause emesis, but the fraserin does not seem to possess this property, nor does the dried root. When taken in medical doses, say two to three grains three times a day, it increases the appetite, invigorates digestion, and imparts tone to the entire digestive apparatus, increasing the secretion of gastric fluid and bile, and hence its value in dyspepsia, etc. In debility, consequent on long-continued attacks of acute disease, it is one of our best remedies to restore the various digestive functions to a normal condition. In cases of congestion of the mucous coat of the bowels, especially the mucous capillaries, it gives prompt relief. It may be combined with other tonics in debility. The usual dose is from two to three grains, repeated three times a day.

Xanthorrhiza Apiifolia-Yellow Root.

This is a small deciduous, indigenous shrub, growing to the height of two or three feet, having a thick, deep-yellow root, of an intensely bitter taste. The stem is short, woody and leafy above, with a bright-yellow bark and wood. The leaves are pinnate. The flowers are small, and of a dark-purplish color; the follicles, or capsules, are inflated, compressed, and about an inch and a half long. It grows along river banks in the mountains. It flowers in March and April. The root is from four to twelve inches long, and of an intensely bitter taste. Hot water extracts its virtues.

Medical Properties.—From the similarity of its medical effects to those of hydrastis and berberis vulgaris, it doubtless contains, like them, a large percentage of berberina, as upon this depends the tonic principle of these plants. If it does contain a large percentage of that valuable tonic, it will be found to be one of our best remedies for indigestion. This article, like berberis vulgaris and hydrastis, has been generally tinctured in alcohol, which but very imperfectly dissolves the berberina, consequently its real value is not obtained. I have been using a fluid extract of these articles made by subjecting them to the action of hot water and glycerine for a considerable time, then straining, or percolating, and evaporating slowly to the proper quantity. Thus treated, they yield one of the most positive tonics that I have ever used. I have frequently relieved dyspepsia of the most obstinate character readily with this preparation. I give it in doses of one or two drachms every four hours. And the above is the proper way of preparing these tonics.

Sepia Officinalis—Cuttle-fish.

The preparations of sepia at present used are triturations of the dried black liquid found in the cuttle-fish, or more convenient than this, a tincture of this substance in alcohol. Sepia is indicated by puffiness of the soft parts, yellow, cachectic

aspect, or earthy-waxy complexion, or where apathy and depression of the mind exist. Excessive sexual desire also indicates sepia. I have used it with good effect in prolapsus uteri, and also in cases of leucorrhœa. It is a very positive remedy for displacements of the uterus. It is also a remedy for painful menstruation, vulvitis, etc. It is highly praised in chronic nasal catarrh. It is also a remedy for migraine. It has been highly spoken of for congestion of the liver and liver spots. Dose five drops.

Panax Quinquefolium-Ginseng, Red Berry.

In nervous dyspepsia ginseng answers a valuable purpose. It grows plentifully in the mountains of Tennessee and Georgia. The plant is about two feet high, with five leaves to the branch, the leaves being ovate, acuminate, doubly serrate, dark-green above, paler beneath, smooth on both sides, and red footstalks. The flowers are small, in a globose umbel, supported on a central, erect peduncle. The fruit is red, baccate, reniform, with two semi-globose seeds. It grows in most of the temperate parts of the United States. Also at the roots of trees, especially in hilly situations. It grows also in China, and the Chinese variety is thought to be much the best. Says Prof. Scudder: "I have obtained more benefit from ginseng, in my own person, than from any other remedy; and I have employed it with others with equal advantage." In persons of sedentary habits, and in dyspepsia from over-brain work, it is a valuable tonic, and doubtless its action is through the pneumogastric nerves. It is not so direct in its action as nux vomica, but is very certain. The people in Tennessee and North Georgia have long used it as a tonic. The tincture may be made by adding eight ounces to one pint of alcohol (50°). Dose, fifteen to thirty drops.

Gentiana Ochroleuca-Sampson Snake Root.

This is called the marsh gentian, straw-colored gentian, and Sampson snake root. It has a stout, ascending stem, from three to six inches in height; its leaves are smooth, deep-green, and

some two or three inches long and three-fourths of an inch to an inch in width, with straw-colored blooms, in dense, terminal cymes, which appear in October; the seeds are very small, but numerous. It grows in Canada and the Southern and Western The roots, which are six to twelve inches long, are They are of bitterish taste, much like the foreign This species of gentian is preferable to the imported variety, for several reasons: because it is a better tonic; because it does not irritate the mucous coat of the stomach as gentian will do, if continued long, and because it is a good aromatic. and very commonly used by the people in colic, which it often relieves readily. I have used this variety of the gentian as a tonic for fifteen or twenty years, in preference to the imported gentian, and I have always found it a trustworthy remedy in indigestion. Sometimes I alternate it with hydrastis, or chelone glabra, or ptelea, and I am generally able to relieve the troubles readily with these remedies. But I have often used the Sampson snake root alone in dyspepsia, and have found it very prompt in its action as a tonic. It may be used in the form of infusion. in doses of half an ounce to an ounce; or tincture, made with eight ounces to one pint of alcohol (60°); dose, thirty to sixty drops.

Zinci Oxidum-Oxide of Zinc.

Oxide of zinc may be used with fine effect in chronic gastritis, where there is free secretion of mucus, and also in cases of ulceration of the stomach. It is very beneficial in nervous dyspepsia, where the tongue is broad, and where there is fullness of the abdomen. In fine powder, it is used as a dressing in moist eruptions of the skin. It is also a valuable application to sore nipples, excoriations, foul, cancerous sores, and in balanitis. An ointment made by adding one part of oxide of zinc to five parts of adeps benzoinatus is a good application to ulcers, fissures, intertrigo, burns, scalds, and chafing of infants. Dose internally one-eighth to one-tenth of a grain, in mucilage of gum acacia.

Damiana.

Damiana is a plant lately introduced to the notice of the profession from Mexico. Dr. Caldwell gives several cases of impotence of male and female treated with damiana and electricity. He says: "Damiana being purely tonic in its properties, and not in any sense an irritant, must be used in sufficient quantity and long enough to bring the system under its influence, say a dessert-spoonful of the fluid extract three or four times a day for three weeks, before permanent benefit will result." From the trials made of damiana, it appears to increase the appetite as a tonic and to improve digestion. But its most marked effect is its exciting influence over the urino-genital organs. It acts as a diuretic, and, if given in large doses, produces excessive sexual desire. This was the result of various experiments upon males and females. Dr. Caldwell concludes that it is a remedy in sterility from debility of the sexual organs in either sex. If so, it can be turned to good account in the treatment of a great variety of diseases of the urino-genital organs besides mere loss of sexual desire. The dose of the fluid extract is from one-fourth to half an ounce four times a day.

Berberis Aquifolium-Oregon Grape.

This is a mild, but positive tonic upon the entire digestive apparatus. The dose of the tincture, made by adding eight ounces of the root to one pint of alcohol, is from ten to thirty drops. Its alkaloid berberia or berberina (C₂₀H₁₇NO₄) is identical with the yellow alkaloid of hydrastis canadensis. This remedy is useful in catarrhal conditions of the gastro-intestinal mucous membrane. It acts on the liver, and on the gastric glands, and thus aids digestion. It is also a valuable alterative in syphilis.

¹ In the Cincinnati Clinic, Vol. IX, No. 4. See the St. Louis Eclectic Medical Journal, Vol. IV, No. 4, April, 1877.

V. ANTIPERIODICS.

The action of antiperiodics is involved in much obscurity. It is not a settled fact whether they act as stimulants to the nerve centers, or as restoratives, supplying the blood with a wanted element of which it had been deprived by the deleterious action of malaria. Dr. Neligan lays it down that antiperiodics act as stimulants to a healthy man; but Pereira says that "A moderate dose of a tonic has little or no effect on a man in perfect health."

Dr. Guy considers that stimulants and tonics (meaning antiperiodics) should be classed together, as stimulants act as tonics to the weak, and tonics as stimulants to the strong. It is certain that the action of malaria is to impair the functions of the nervous system, lessening nutrition. It follows, then, that to overcome the deleterious action of malaria we must give something to increase nerve force. This miasm is a peculiar poison, generated from decaying matter and marshy fermenta-The effects of this poison in the blood have been compared to fermentation, which produces regularly recurring paroxysms. There is first a disturbance in the calorifacient process—hence the chill; reaction takes place, and we have fever; finally, the reaction ends in sweating. The attack goes off as if the poison that caused it were all eliminated by the perspiration, but in a certain time it again repeats the same morbid process. Such phenomena are very hard to account for on pathological principles. Some writers believe that the primary effect of this poison is to deprive the blood of a principle called quinoidine, and hence explain the action of quinia as a restorative which supplies this element in the blood. This animal quinoidine is secreted from the blood by the liver, and belongs to that part of the bile which is re-absorbed from the intestinal surface; hence, the rapid passage of this along the alimentary canal cannot but do harm in fever instead of good.

The old plan of purging with mercurials, with the false idea that a torpid liver was the cause of fever, only increased the evil. Liebig¹ argues that quinia and morphia both resemble the brain substance in their elementary constitution; hence they are enabled to exert a direct control over the brain, by influencing its nutrition. This is denied by Headland; but he says "There is a strong resemblance between the taurine of the bile and those antiperiodic vegetable alkaloids, as quinia, salicine, and some others. Quinia does not differ more from taurine than do some of those vegetable alkaloids from one another. This may be seen by placing them in contrast—thus, quinia is composed of the following constituents, $C_{20} H_{12} O_2 N$; salicine, $C_{26} H_{18} O_{14}$; taurine, $C_4 H_7 O_6 N + S_2$."

It is sufficient for us to know that there are naturally in the blood substances which resemble, or are identical to the constituent elements of quinia. We may infer, then, that quinia will not be foreign to the blood, and can with propriety be retained in the blood and act as a restorative, supplying certain elements that are wanting; and it appears from actual experiments that, when given in medical doses, quinia is not excreted at all; but when given in over-doses it, like other restoratives, is thrown off through the kidneys.

It appears, then, that quinia adds something to the blood, and thereby cures ague, which is caused by, or is connected with, a deficiency of that element in the blood. It is ascertained that many, if not all of the diseases in which quinia and kindred medicines are found to be of use, are connected with a derangement of the secretory function of the liver.

This fact has led to the extensive use of mercurials in the treatment of fever; but experience, as well as the above theory, has long since shown that mercury can never cure fever; even if it did increase the secretory function of the liver, it could never produce the deficient element, taurine, unless it contained it.

¹ Organic Chemistry, p. 182.

Cinchona—Quinia—Quinidia—Chinoidina.

In treating of this class of remedies, I think that we may properly begin with cinchona and its salts—quinia, quinidia, and, as some chemists name it, chinoidina.

Of the salts, for certainty and mildness of action, I prefer quinidia, and if that cannot be procured, I use quinia and the sulphate of cinchona mixed together. Where there is no determination to the brain, quinia may be used, which acts very promptly; where there is a great deal of malaria in the blood, and the remedies have to be continued for a length of time, I prefer a fluid extract of the bark, made with water, acid and alcohol; or I put all the salts together and give them. The quinidia, as prepared by Powers & Weightman of Philadelphia, is a very prompt antiperiodic.

That the quinia and the other salts of Peruvian bark will cure intermittent and remittent fever no one now doubts; but that it fails to do so in many cases, is evident, and must be readily admitted; every physician can recollect cases in which it signally failed. Why this failure? Was it, as some would believe, idiosyncrasy? or was it the poorness of the article used? It may be occasionally the fault of the article used, but oftener than otherwise it is the condition of the system when it was given. The stomach must be in a condition to absorb it, and the system must be in a proper condition to receive it. There is often complaint of vertigo, roaring in the ears, and many such unpleasant results; but if we will precede it with gelsemium or aconite, and get a soft and open pulse, a moist, soft skin, and a moist, cleaning tongue, then we may expect the kindly action of antiperiodics, and not otherwise.

There are various opinions in regard to the best mode of giving the requisite quantity; that is, whether it is best to give one full dose, or give the medicine in divided doses. I think it will be less liable to produce unpleasant consequences when given in divided doses—say three grains every one or two hours, in the interval, until ten or fifteen grains have been

taken. In cases of congestive fever it is safer to give five grains, frequently repeated, until the requisite quantity has been given; and it should be in proportion to the amount of the poison in the blood. In a great many cases of fever it would be better to precede the quinia by an emetic, to cleanse and arouse the energies of the stomach so as readily to absorb the medicine.

This remedy comes as near being a specific to fever as we have for any disease, but it is only specific when the system is in a condition to absorb and appropriate it.

In those cases termed gastric fever, where there is local inflammation of the stomach, it is best to precede the quinidia or quinia with aconite; or if there is determination to the brain, with gelsemium. Quinia is valuable in many other diseases in which the cerebro-spinal centers require a stimulant. In many diseases in which we find impaired innervation retarding functional activity, quinia will be found a proper remedy, given in small and repeated doses—say half a grain to one grain, every hour or two. It also possesses marked tonic effects upon the stomach, through its influence over the sympathetic system, as well as the cerebro-spinal centers. In some cases where, from impaired innervation, digestion and assimilation are feeble, quinia may be given with marked advantage. I usually associate or alternate it with nux vomica or hydrastin. In some cases I use the cold infusion of the bark—one ounce to four ounces of water. Dose, half an ounce every two hours. There are several species of the bark, and there is much difference in the amount of quinia contained in each. There is great difference of opinion in regard to the amount of quinia required in the treatment of fever. Some advise very large quantities, as from fifty to one hundred grains, but I have seldom given more than ten or fifteen grains, and I think that quantity sufficient for ordinary fevers of this country; in the more grave forms of fever prevalent in the western parts of the United States larger quantities would be required.

In chronic malarial poisoning, I have recently used the normal liquid of the red-cinchona bark, alternated with compound tincture of iodine, with very positive success, in several very obstinate cases of long standing. I give the normal liquid of cinchona in doses of sixty minims, every two hours during the day, and five drops of the compound tincture of iodine, every three hours, during the interval between the paroxysms of fever. The cases that relapse every time the subject is exposed to bad weather, will be cured by the continued use of the above. The normal tinctures containing all the constituents of the bark, are more active in chronic malarial poisoning than any one of the alkaloids. These normal liquids also, being of uniform strength, will not disappoint the prescriber in the effect.

Beberiæ Sulphas-Bebeerine.

This is a salt from the nectandra rodiæi or bebeeru. It is in glittering, brownish-yellow scales. Several years ago I used this with good effect in intermittent fever, but it does not appear to act as well now as then. I have used it a great deal recently in cases of congested uterus, giving rise to profuse hæmorrhage. It possesses a direct effect upon the uterus. In menorrhagia it acts with more promptitude than any article in the materia medica. It not only controls the hæmorrhage, but if taken in small doses in the interval, it prevents its recurrence. For this purpose two or three grains, in pills, may be given every two or three hours. As an antiperiodic it may be given in five grain doses, every two hours, until twenty to thirty grains have been taken. But it would be better to combine it with quinia—ten grains bebeerine and five grains of quinia, which may be given in three doses in the interval.

This combination I have found to act very promptly in some obstinate cases that did not readily yield to quinine. I very seldom depend upon bebeerine alone when I can procure the preparations of the bark. In fact, when the system is in a

proper condition for the reception of the alkaloids of the bark I never depend on any other antiperiodic. The dose of bebeerine is from two to three grains, every three hours.

Grindelia Squarrosa-Ague Weed.

The part used is the leaves, from which a fluid extract and a tincture are prepared. Grindelia belongs to the natural order composite and is found in California.

Physiological Action.—In teaspoonful doses of the normal tincture, or fluid extract, this medicine produces headache, pain in the limbs; and continued, it produces pain in the eyes, spleen, and liver, and finally retards respiration.

Therapeutic Action.—From the limited use that has been made of the grindelia squarrosa, it has been proved to be a good remedy for old cases of enlarged spleen, and to counteract the other effects of malaria in the blood, such as torpidity of the liver, chronic chills, anemia, and neuralgia occurring periodically. The dose is twenty to forty drops every two hours.

Salicinum—Salicin.

Salicin is prepared from the salix nigra and from several other species of the willow, and is in scaly crystals of a silky appearance, of white color, and soluble in water and alcohol. If sulphuric acid is added it produces a red color. It possesses antiperiodic and tonic properties analogous to those of sulphate of quinine, but is less liable to offend the stomach and head than quinia. As an antiperiodic it is inferior to quinia. As a simple bitter tonic it ranks with gentian and calumba. The dose is from ten to thirty grains, repeated as may be required.

Although the willow and its salt are inferior to quinia, yet there is a class of diseases in which these articles are valuable. In cases of malarious disease attended with increased secretion of the mucous membranes, and a septic tendency, with fetid discharges, this article will be found a good remedy. In typhoid fever it is safer and more efficient than quinia, and

may be given in one or two grain doses, every three hours, as a tonic and antiseptic. For this purpose a saturated tincture of the fresh bark is a very convenient and efficient form to give. The tincture may be made by adding eight ounces to one pint of alcohol (60°). Dose from thirty to sixty drops, repeated every two or three hours. I have often used this with the white poplar and cornus florida with prompt success in cases where quinia had disagreed. It is a remedy for acute rheumatism in doses of five grains three times a day.

Cornus Florida — Dogwood, Box-Tree, Great Flowered Cornel.

Cornus florida comes the nearest to being a substitute for cinchona of any of the antiperiodics heretofore named; in addition to its very marked antiperiodic power it possesses a very positive tonic property. In many cases of frequent relapses in chills and fever I have found this bark, united with the willow and poplar, to be very successful. They seem to tone up the nervous system so as to effectually fortify the system against a relapse. It should be given in the form of a saturated tincture, made by covering the fresh bark of the root in alcohol (76°). The dose should be from thirty to sixty drops, every two hours. A tincture of the berries is a good stomach bitters. Dose, the same as above.

Cornin.—Cornin is now manufactured from the cornus florida, and possesses its antiperiodic powers when made properly, but, like many other articles, is too often made from old dried bark which is worthless. When made from the freshly-dried bark it is a good remedy, and may be used at any time when quinine disagrees or cannot be had. It may be given in doses of three or four grains, every three hours. In periodical fits (epilepsy) some writers claim very great efficiency for this article, given in five-grain doses, three times a day. I have not tried it in any such cases, but have no doubt of its efficacy as a mild nerve tonic, etc.

CERASIN. 157

Cornin has some astringent, considerable tonic and very marked antiperiodic properties, and comes near a substitute for quinine when that article cannot be had, or where any idiosyncrasy to the quinine exists. In all cases where great debility exists, as in chronic ague, it should be combined with quinine and ptelin, one grain of each, and repeated every two hours, in the interval between the decline of the fever and the commencement of the chill. This combination will be found very prompt in arresting the fever. I have not found cornin equal to quinine in neutralizing the paludal poison in the blood, but when combined with quinine and other antiperiodics, I find the combination much better tolerated by most patients, and much more efficient in arresting the paroxysms of miasmatic fevers.

In dysmenorrhœa, from hyperæsthesia of the uterus, cornin, combined with scutellarin and gelsemin, say cornin two grains, gelsemin half a grain, scutellarin two grains, given every two or three hours, until the effects of the gelsemin are manifest upon the muscular system, will seldom fail to give relief. The fluid extract and essential tincture are both reliable. The dose of cornin is from one to ten grains, every three hours. Ordinarily two to four grains is sufficient, repeated every three hours.

Cerasin.

Cerasin is the active, antiperiodic principle of the cerasus virginiana. Cerasin has a specific tendency to the cerebrospinal system, and its effects seem to be opposite to that of malaria, and hence it is a valuable remedy in marsh fevers. Its action would seem that of a stimulant to the cerebro-spinal centers, thereby overcoming the depressed capillary circulation that prevails in miasmatic fevers. In remittent and intermittent fevers, cerasin may be combined with quinia, or other antiperiodics; and it very materially increases the effects of quinine in checking summer fevers. In cases where from neglect, or from inefficient treatment, the spleen has become enlarged, this remedy will be found one of rare value. One very high com-

mendation is, that cerasin does not produce that unpleasant effect upon the hearing that is characteristic of quinine; it seems to produce its antiperiodic effects without any special disturbance of the healthful functions of the body. And it is more easily administered to children, as it is not so bitter as quinine, nor is the bitter taste so persistent in the mouth. It has important tonic effects, and, as such, it may be given in cases of debility and of tedious convalescence from protracted attacks of disease. The usual dose, as an antiperiodic, is from five to ten grains every three hours during the remission, etc.

Eupatorium Perfoliatum-Boneset.

This article is a very mild but positive antiperiodic. Its direct action upon the secretory functions of the liver makes it an important remedy where a mild tonic and antiperiodic is indicated. And while it acts as a tonic and antiperiodic, it also possesses diaphoretic properties, and, in large doses, opens the skin freely. I have often known the Southern planters to use it in intermittent fever very successfully. It has been mostly used in the form of an infusion, but the saturated tincture is the most eligible form for an antiperiodic. I think that the saturated tinctures of eupatorium, cornus florida, and poplar bark, in equal quantities, would prove as good a substitute for quinia as euonymus and ptelea. As it grows very plentifully in the swamps of the United States it will afford a very convenient and cheap article for cases that do not pay the doctor's fee. The most efficient preparation is made by covering the fresh leaves, bruised, in alcohol (76°), and steeping ten days, then compressing the leaves until all the tincture is obtained. The dose of this will be from half an ounce to two ounces every hour or two. It is a good remedy to sustain the nervous system in typhoid fever. I have used it a great deal in this disease. The fluid extract is a good preparation.

Eupatorin.—Eupatorin is the active property of the eupatorium perfoliatum, or boneset. This article, in large doses,

say five to ten grains, acts as an emeto-cathartic; but in small doses, say from one-eighth to one-fourth of a grain, it acts as a tonic and antiperiodic. As a tonic upon the stomach, it may be combined with alnuin and hydrastin, and given three times a day. In doses of half a grain, it acts mildly upon the liver, imparting tone and energy to it. In cases of dyspepsia, accompanied with torpor of the liver, this is an appropriate remedy. It has very marked antiperiodic properties also, and may be combined with quinine, bebeerine, cerasin, or cornin, in remittent and intermittent fevers. I have often used it as an adjuvant to other antiperiodics. The crude article is much used by nonprofessionals as an antiperiodic and diaphoretic in fevers and colds, etc. It is a mild tonic, and I have derived much benefit from it in typhoid fever as a tonic and diaphoretic. In cases of dyspepsia, accompanied with water-brash eructation of acid—this is a very valuable remedy in small doses, repeated every two or three hours. I have often resorted to this in those cases of indigestion attended with spitting up of the food, and have found it a very prompt remedy. The dose, as a tonic and antiperiodic, is from one-eighth to onefourth of a grain every two hours; as an emetic, five to ten grains.

Boletus Laricis, Polyporus Officinalis, Agaricus Albus— White Agaric. Polyporus Pinicola.

The fluid extract of both these species of agaric have a very considerable influence over the cerebro-spinal system, and have proven very active in curing obstinate agues, remittent fevers, and neuralgia from malaria. Polyporus is also a valuable remedy for nervous headache, especially when caused by malaria. It is thought to be curative of jaundice. Its influence upon the cerebro-spinal system would suggest it as a remedy in epilepsy and chorea. The dose of the fluid extract is from five to eight drops every three or four hours. The dose of the essential tincture is from five to ten drops every

three hours. The dose of the powder is three to four grains every three or four hours.

This article has been found very valuable in the cure of chronic ague. In obstinate cases of remittent fever, or where the patient does not tolerate quinia, this remedy will be found of actual service. In dysentery or diarrhœa, periodical neuralgia, nervous headache, ague cake (enlarged spleen), and in increased flow of urine, polyporus acts well. Both the above species have proven useful in jaundice, and in the chills and fever that occur in phthisis pulmonalis. These varieties of boletus exert a powerful influence upon the sympathetic nervous system.

Pyrus Malus-Apple Tree.

The fluid extract, as well as the solid extract, of pyrus malus has marked antiperiodic power. I have used this article a good deal in intermittent and remittent fever, and though it is not equal to the preparations of barks, yet it may be often used where they cannot be obtained. In some cases of old chronic ague it may be combined with ptelea, or some other articles of its class, with good effect. The essential or saturated tincture may be made by covering the bark with alcohol (76°), steep ten days and strain. Dose, five to thirty drops every two hours, during chills.

Pyruscin.—Pyruscin is the antiperiodic principle of the pyrus malus. This article has recently been manufactured, and has not been, as yet, very generally used; but from the trials that have been made of it, it appears to be quite a reliable antiperiodic. In the treatment of remittent and intermittent fevers it may be combined with quinine, say five grains of the former and one of the latter, and given every two hours during the intermission or remission. In neuralgia, it may be combined with quinine and cyanuret of iron in the same doses as above, and given every three or four hours, with the happiest effect. In ophthalmia, some writers speak of it in terms of

high commendation, but I have not used it in this affection as yet, and, consequently, cannot recommend it. It is thought by some to have a tonic, stimulant effect upon the mucous membranes similar to that of muriate of hydrastia.

It is quite different in its composition from phloridzin, the alkaloid of the pyrus malus, and is a much better representative of the crude bark of the apple tree. The pyrusein dissolved in water—one or two grains to four ounces of water—used as an injection, is a prompt remedy for the seat-worm. It is also a good tonic for the digestive organs, given in doses of one, two or three grains before meals. The dose, as an antiperiodic, is from three to five grains every two hours; as a tonic, from one to three grains three times a day.

Euonymus Atropurpureus - Wahoo, The Burning Bush.

Euonymus has been already noticed as a cholagogue and tonic, but its antiperiodic property entitles it to a place in the list of febrifuges. It not only stimulates all the nutritive functions, but also has marked antiperiodic powers. I have used it with the ptelea trifoliata, with the best of success in many cases of old chronic chills. I think that this combination is one of the most certain that we have in old, long-standing cases that have resisted quinine, and it is much safer than arsenic.

During the late war I used this article combined with ptelea in a great many cases of chills, at the commencement of the attack, and found that it was as certain as quinine, but not quite so speedy in arresting the disease; and while it was a little slower in arresting the disease, it was not liable to return after the use of these remedies, as is often the case when the disease has been arrested with quinine. I used the fluid extracts in half drachm doses, every two hours, in the interval between the paroxysms. The essential tincture is about the same strength as the fluid extract, and may be made by covering the fresh bark in alcohol, steeping ten days, and then perco-

lating off the clear tincture. Dose, half a drachm to one drachm every one or two hours; in large doses it is a mild aperient and cholagogue.

Ptelea Trifoliata-Wafer Ash, Swamp Dogwood.

Besides the very valuable tonic property of this shrub, it, like euonymus, is also an antiperiodic of considerable power: I have used it a great deal in chronic ague, and have found it one of the most positive articles in such cases in the list of antiperiodics. When fresh, it is an article altogether reliable in all cases that have resisted quinine. I recently treated a gentleman and his wife for chronic chills, with this article combined with euonymus and Peruvian bark, and relieved the chills of both in a few days, which did not return. They had long tried quinine with only temporary suspension, followed by return of the disease; but after taking equal parts of the tinctures of the above articles the chills did not return. I have treated a great many similar cases with the same success. In cases of long standing ague, I now depend on the above combination. While they check the disease, at the same time they tone up the entire vegetative functions and make convalescence rapid and permanent. The tincture should be made in pure alcohol, eight ounces to the pint. Dose, one to two drachms three or four times a day. It is intensely bitter.

Eucalyptus Globulus-Blue Gum Tree, Fever Tree.

Eucalyptus globulus (natural order Myrtaceæ) is a lofty, thrifty growing tree of Australia, now being naturalized in the United States and other countries for its supposed prophylactic properties against malaria. The leaves are the parts that have been used as an antiperiodic and tonic, in doses from sixty grains to half an ounce when dried, and in smaller doses when fresh. The tincture is the best form for use; it may be made by covering the freshly-dried leaves in alcohol. The dose is from one to two drachms, repeated every one or two hours.

This is a new remedy and is not well known, but it is worthy of further investigation. A fluid extract would be a good form for use; the dose should be from half a drachm to one drachm every one or two hours, in some aromatic water.

Eucalyptol is the name of a concentrated alcoholic solution or extract; the dose of it is twenty drops, repeated three or four times a day. Prof. Biddle, of Philadelphia, says this preparation has proved efficient in whooping-cough. I would recommend those who have an opportunity, to test this remedy and report through the journals the results of their investigations. I have aimed to test it ere this, but have not had the opportunity of so doing.

The leaves of the eucalyptus globulus contain a volatile oil, of a yellow color, specific gravity .917 at 59° Fahr. This oil is composed of two terpenes, (C_{10} H_{16}); cymol (C_{10} H_{14}), and eucalyptol (C_{10} H_{16} O). It also oxidizes readily, and doubtless contains more or less resinous matter. The leaves also contain tannin, an amorphous acid-resin, an acid yellow resin of a bitter taste, and an acid crystalline body. It also contains eucalyptic acid, a bitter crystalline substance, soluble in alcohol and ether, and slightly soluble in water, and an acid crystalline resin.

The tincture, made by adding the finely crushed leaves, eight ounces to eight ounces of alcohol, may be given in doses of ten to sixty drops every two hours. This article has been praised in chronic ague, or chronic malarial poisoning, after quinia, or Peruvian bark have failed. It stimulates the nerve centers, thereby improving the circulation and respiration, and consequently renders the oxygenation of the blood more thorough. It also opposes the depressing effects of malaria in the blood. It is not as active to break up a fever or ague as quinine, but is a good remedy to keep off a relapse when it is suspended. And besides this use of it, it has been employed in cases of bronchitis with fetid expectoration, and in some cases of asthma.

It has the power of converting oxygen into ozone; hence, it

is a valuable antiseptic. I have used it locally in several cases of diphtheria with fine success. I use a mixture of the tincture, one part, and glycerine one part, applied with a fine mop or sponge on wire. It is a good deodorizer, when locally applied to old fetid ulcers. It is a good application to ulcerated eyes, one part to eight parts of distilled water, dropped in the eyes several times during the day. Under the use of this wash, the pain soon begins to abate, the inflammation subsides, and in a few days the ulceration will be healed entirely. In otorrhea, the fluid extract of eucalyptus one ounce and water one ounce, mixed, and injected into the ears, two or three times a day, will soon result in a complete cure of the disease. Diphtheria and diphtheritic croup yield to this remedy given internally and used locally. I have used one part oil eucalyptus, two parts glycerine, one part oil of turpentine, with fine success; it cures diphtheria quickly.

In old cases of catarrhal dyspepsia, attended with pain in the stomach and eructations of foul gas, the fluid extract or the tincture of eucalyptus one ounce, glycerine one ounce, taken in teaspoonful doses before meals, acts like a charm. My friend Dr. S. Jones, of Eastern Pennsylvania, says, "It cures diabetes, in doses of twenty drops, four times a day." And he says he has not failed in one hundred cases of ague, in doses of sixty drops of the fluid extract, given three times a day.

To prevent suppuration in wounds, a dressing of the oil of eucalyptus one ounce, olive oil nine ounces, applied on lint or cloth is useful. This also effectually cures chilblains.

Parthenium-Feverfew.

Dr. S. Jones, of Eastern Pennsylvania, says that parthenium cures ague with as much certainty as does eucalyptus. Who will try it and report the results? As this article grows in our garden, it ought to be more thoroughly tested. It is commonly called feverfew.

Niccoli Sulphas-Sulphate of Nickel.

This salt is formed by dissolving carbonate of nickel in dilute sulphuric acid, concentrating the solution and then letting it crystallize. It is in the form of emerald green crystals, efflorescent in the air, and is soluble in three parts of water, not soluble in alcohol or ether; and has an astringent, sweetish taste. I triturate it nine parts of sugar of milk to one of the sulphate of nickel. It resembles arsenic, zinc, atropine, quinine, gelsemium and bi-chromate of potash in its effects upon the nervous system.

Medical Effects.—It is a specific in periodical headaches. I have long suffered from attacks of this very distressing affection, and seeing the reports of cases cured by it in that admirable work of Prof. E. M. Hale, entitled "New Remedies," I prepared the above trituration and took one or two grains, which relieved the paroxysms; after continuing it for some time, the disease ceased to return. Prof. Hale also reports many very grave cases of neuralgia cured by it. I have used it in several very old cases of neuralgia, and have been utterly astonished to see how readily it relieves that most excruciating malady, especially when it is of a periodical character.

It seems to be an antiperiodic, and doubtless would do good service in other periodic diseases. It acts upon the cerebrospinal system much like quinia, arsenic, gelsemium and zinc, and I think will prove useful in "dumb ague" as it is called (a low form of periodical fever), if not in ordinary chills. I have not been better pleased with any new remedy that has been introduced to the profession. The dose is from one-fourth to half a grain; I give from one-eighth to one-fourth of a grain once or twice or even three or four times a day, if it is required.

Ostrya Virginica-Iron Wood.

This remedy has been presented as a tonic and antiperiodic. It is used by some writers in place of quinia itself. I have tried it in only a few cases. It does possess tonic properties,

together with anti-malarial powers, and should be more thoroughly tested in this direction.

Preparations of ostrya virginica are the tincture and fluid extract. The dose of the normal tincture is twenty to thirty drops. This drug is especially beneficial in relapses of chills, or in cases of indigestion and debility, as it is a good bitter tonic, with active antiperiodic powers. It is believed by some writers to be second only to quinine itself, in chills. I have used it in several cases of relapses of fevers and chills, and with fine success. I have used it for atonic dyspepsia with good effect. The fluid extract taken one hour before each meal, in doses of thirty or forty drops, or the normal tincture in doses of twenty drops, will give appetite and tone up the stomach, and thus aid digestion.

Alstonia Scholaris-Dita Bark.

This bark is obtained from a tree in the Philippine Islands. It has been claimed to be anti-malarial, but is feeble compared to other articles of this class. The dose is ten drops, every two hours.

Alstonia Constricta-Australian Fever Tree.

This is a native of Australia, and has been used there by the people as a substitute for quinine. It does not appear to be as certain and as immediate in its action as quinine in recent agues, yet its effects are more permanent, and relapses are not apt to occur where the fever has been cured with this drug. It is especially indicated where the skin is sallow and of a dirty appearance, with irregularity of the bowels, and a dirty coating on the tongue. It should be tried where quinine fails. It also corrects the secretions. The dose is from ten to thirty drops.

Artemisia Frigida, Salvia Sierra-Mountain Sage.

This species of artemisia, growing in the western United States, was introduced by Dr. A. Comstock, of Silver Cliff, Colorado, as a substitute for quinine, in doses of one to two drachms. In the treatment of periodic fevers, he advises it to be given in doses of a teaspoonful of the fluid extract in a glass of lemonade one hour before the expected chill, the dose to be repeated in thirty minutes, if it does not produce perspiration. He recommends it also in rheumatism, scarlet fever, diphtheria, etc. It seems to act both as a diaphoretic and diuretic, and consequently may be valuable in the treatment of fever or rheumatism, as it thus tends to eliminate the poisons of these diseases from the blood. It is worthy of investigation.

Monarda Fistulosa-Wild Bergamot.

The fluid extract is used. Dose, fifteen to sixty minims. Dr. C. M. Woodward, of Tecumseh, Mich., says he has used this remedy in a great many cases of ague and of fever, without a single failure. Through the kindness of that most enterprising house, Parke, Davis & Co., of Detroit, I have had an opportunity to test this article in several cases of chronic malarial poisoning, and found it very certain, but too slow in its action to use in acute fever or ague. It is, however, a good remedy in chronic cases, and a good prophylactic in those cases that are inclined to relapse. In large doses, it acts as a diaphoretic, and is almost equal to jaborandi in its stimulation of the sweat glands; hence, it cannot fail to be of service in fevers.

Ferrum-Iron.

There are a great many preparations of iron, and some writers recommend one preparation and others a different one. I have found that the difference is in the ready solubility of the article used. As a simple chalybeate, Quevenne's iron by hydrogen—ferrum reductum—is a good preparation. The tincture of the chloride of iron, and the lactate and acetate of iron, are all good preparations where an acid is also indicated with the chalybeate. It is probable that all the preparations

are converted into peroxides in the blood; hence they then act alike as restoratives. They do not act suddenly, but they are permanent in action.

Iron constitutes the coloring matter of the red corpuscles of the blood—that is, it forms the color of the hæmatosin, which is one of the most important constituents of the blood; and, when deficient, as evidenced by paleness of skin and other tissues, the whole system materially suffers. This condition is called anæmia; and there is a state of general debility which is very frequently followed by dropsy. The free administration of iron is the only remedy for this deficiency of that metal in the blood; hence it is then a true restorative, supplying the blood with this essential element. Chalybeates have a direct and immediate effect upon the blood by restoring to it the hæmatosin; but there is a difference of opinion as to the manner in which they thus produce this change in the blood. Mialhe thinks that albuminate of the peroxide of iron is formed in the blood, and that this albuminate is the basis of the red globules of the blood.

All the known soluble compounds of iron, except the ferrocyanide and the ferricyanide of potassium, act as restoratives. The chalybeate springs contain iron in the form of carbonate, held in solution by an excess of carbonic acid, and are no better than the saccharated carbonate of iron, or other soluble preparations of it. When iron enters the system, unless required in the blood, it is excreted from it. Some of it combines with the sulphuretted hydrogen in the intestinal canal, and blackens the stools. The sulphate and the chloride of iron are astringents, and so is the persulphate; the last is the most astringent of any of the preparations of iron, and forms a valuable styptic. Iron, then, is simply a restorative, improving the blood; it appears to act like a tonic, but is not a tonic, for it neither cures ordinary debility nor dyspepsia, nor is it an antiperiodic; and hence it is of no use unless anemia exists

Tinctura Ferri Chloridi-Muriated Tincture of Iron, Tincture of Chloride of Iron.

This is a solution of iron first in muriatic acid, then that solution diluted with alcohol. It is regarded as somewhat diuretic. It is a remedy for erysipelas, especially where the mucous membranes are dark-red, or bluish-purple, with a darkred color of the diseased surface. In such cases, the chloride of iron will be found to act speedily. I have been treating erysipelas thus for many years, and cannot now call to mind a single instance in which it failed to cure the disease. It is more than likely that the cause of this disease is a want of iron in the blood, and hence iron cures it as a restorative. It is probable that it occurs as one of the results of anæmia a depraved blood—and iron being the deficient element, cures the disease as it does other forms of anemia. Be this true or not, I am fully satisfied that the chloride of iron is the remedy for this disease. This preparation is often given as a diuretic, but as such is feeble. In hæmorrhage from the urinary organs I have often used it, alternated with turpentine, with success. It may be given in doses from ten to thirty drops, according to what effect is desired. As a diuretic, it may be given in doses of twenty to thirty drops. In erysipelas, it may be given in doses of twenty drops. It need not be repeated oftener than every third hour.

Ferrum Reductum-Iron by Hydrogen.

Quevenne's iron by hydrogen is a fine preparation, and answers all the purposes of that metal as a chalybeate. It is very readily reduced to the peroxide, and enters the blood, producing the renewing effects of this metal therein. Garrod considers this preparation the most available one, and there can be no doubt of the correctness of the statement.

Iron by hydrogen may be given in four to five grain doses, every three or four hours, in all cases where there is an indication for the use of a chalybeate. We often find an anemic condition following exhausting diseases, measles, scarlatina, and frequently other inflammatory diseases. After measles and scarlatina the blood is so impaired that we have not only anæmia, but very frequently dropsy. In cases of dropsy, from anæmia, this is a good remedy. Besides these preparations of iron there are others that are very good, as the pernitrate, acetate, lactate, and Valet's iron mass, but they all act on the blood alike. The prussiate of iron has been regarded as an antiperiodic, but its power over chills is feeble. The persulphate is the most powerful styptic and astringent that we have, and may be used whenever such an article is demanded.

Arsenicum—Arsenic.

Metallic arsenic is inert, though when swallowed it may become oxidized, and thereby converted into arsenious acid, which is poisonous. It is never used in medicine. arseniosum (arsenious acid, As, O3), sometimes called white arsenic, oxide of arsenic, or arsenic, is obtained principally in the roasting of cobalt ores, and then purified by sublimation. It has no smell, and but little or no taste, and is soluble in water and alcohol, and some oils. Water will dissolve about half a grain to the ounce while cold, and by long boiling it will dissolve about ten or twelve grains to the ounce. is sometimes maliciously given to produce death, proper chemical tests should be known by every physician. Arsenic in powder thrown upon burning charcoal is deoxidized, and gives off the peculiar garlicky odor of metallic arsenic. If heated in a glass tube with black flux or charcoal it sublimes and condenses in the form of a brilliant steel-gray ring or mirror. aqueous solution arsenious acid may be detected by sulphuretted hydrogen or the sulphide of ammonium, both of which produce a lemon or sulphur-yellow sulphide of arsenic. The addition first of ammonia and then of the nitrate of silver to arsenic, produces a canary-yellow precipitate—the arsenite of silver. The addition first of potassa, then of the sulphate of copper to arsenic, produces a grass-green precipitate—the arsenite of copper. There are other tests, which may be found in chemical works.

Physiological Effects.—Arsenious acid locally applied to the flesh acts as an active escharotic. (See Escharotics.) When arsenic is taken internally for some time, it produces more or less heat and dryness of the throat and stomach, with nausea, increased secretion from the kidneys and bowels, irritation of the conjunctiva, and cedema of the face; and if still continued it produces salivation, an eruption on the skin, loss of the hair and nails, paralysis, convulsions, delirium, coma, and finally death. In large doses it is an immediate poison, producing death by inducing gastro-enteritis in from two to three days. Sometimes very large doses produce death by narcotism in a few hours. The best antidote, after using the stomach pump, is the hydrated oxide of iron, fresh, in the form of a pulp or magma. This forms with arsenious acid an insoluble inert, ferrous arseniate (Fe, AsO,).

Liquor Potassii Arsenitis-Fowler's Solution.

The arsenite of potassium, or Fowler's solution, is used in chronic chills by some physicians, but we have safer and more certain remedies. It is used in some skin diseases, as lepra, eczema, psoriasis and pityriasis, and some others. It is given in doses of from three to seven drops three times a day.

Arsenici Iodidum-Iodide of Arsenic.

Iodide of arsenic is also a good preparation for cases that tend to ulceration. Dose, the one-hundredth of a grain.

VI ANTILITHICS—SOLVENTS.

Antilithics are such alkalies, acids and the neutral salts as tend to decompose calculous formations within the urinary passages. Although the urine, clear and limpid in health, contains in it several constituents which are, by their nature, insoluble, but are held in solution by certain other materials; yet in certain morbid states these latter materials may be wanting, or otherwise these insoluble bodies may be secreted in such quantity that the solvent material is insufficient to hold them in solution. In that condition the constituents of the urine may either be separated by the kidneys from the blood in a solid state, or they may be deposited from the urine after excretion on cooling. Thus, they would fall down in a crystalline state, constituting urinary deposits.

Antilithics, or solvents, are medicines that are employed to hold the elementary constituents of the urine in a state of solution, where the natural solvents are wanting. To do this they must pass into the blood after being absorbed, and pass out into the urine. We do not well understand the nature of the ordinary urinary solvents, yet it is very evident that they must be present in the urine because substances which are by their nature insoluble occasionally occur in the urine. And it is evident that there are certain medicines—chemicals—that are able to supply their place; for, after one of these chemicals is given in a case of urinary deposit, the deposit disappears and at the same time the solvent appears in the urine. These remedies, then, may be also classed with restorative medicines.

The most common deposits of the urine are termed lithic and phosphatic calculi. The first includes uric acid, urate of ammonia, and sometimes urate of soda. In the second class are comprised the triple phosphates of ammonia and magnesia, and the phosphate of lime. All of these deposits are well defined by the microscope with an objective magnifying from ten thousand to twenty thousand diameters. The lithic or uric acid deposits and the urate of ammonia are soluble in alkalies. The phosphatic deposits are soluble in acids. While in solution the uric acid deposits are precipitated by an acid, and the phosphates by an alkali, because by such a reagent the solvent is neutralized. These concrete urinary sediments may be the result of an error in diet; or drinking of wine or other acids to excess, or eating acid fruits too freely may cause the

lithic acid deposits. The suppression of other secretions, as that of the skin, may cause this condition.

The phosphates are held in solution by phosphoric acid, or by that acid which gives the urine its slight acid reaction in An alkali in excess in the blood, which occurs sometimes in typhoid fever, will cause the precipitation of the phosphates; or the alkali may be formed in the bladder by the decomposition of the urine. The phosphates may occur from that excessive acid that occurs in sarcina ventriculi, from the fact that there is not enough acid left in the system to maintain the acidity of the urine; the urine, therefore, finally becomes alkaline, and is liable to deposit the phosphates. Acids and alkalies have been mentioned as remedies for these deposits: the acids for phosphatic, and the alkalies for lithic acid deposits. alkali or the acid will neutralize the disturbing cause. are not directly solvent, but they set free something else that is capable of secondary solvent action. We have mentioned the fact that alkalies counteract lithic acid deposits, and that acids counteract phosphatic deposits; and now we will name the best articles of these classes. Potassium is the best alkali for the lithic acid diathesis, and the bicarbonate of potassium the best preparation. Muriatic acid is the best acid to use in the phosphatic diathesis, given in doses of five drops every four hours.

Potassii Carbonas—Carbonate of Potassium. Potassii Bicarbonas—Bicarbonate of Potassium.

The carbonate of potash is the most certain antilithic that we have, but cannot be tolerated by the stomach as well as the bicarbonate, but when well diluted with water, it is very positive in its action. It should be given on an empty stomach, largely diluted with water, in doses of eight or ten grains every three hours; or the bicarbonate in doses of fifteen to twenty grains every three hours. I have thus dissolved several calculi so that they would pass off with the urine in particles about the size of a small bean. A calculus of that size is now in the

museum of the Eclectic College at Philadelphia, presented to the college by me. I have dissolved calculi in several other instances for parties who kept them themselves for exhibition. It requires perseverance in the administration of the potassium to counteract the lithic diathesis. It should be given well diluted in water, and the patient should live on light soups. Thus given, the urine will soon be rendered alkaline; when the urine becomes alkaline, the calculi will then be chemically acted on by the potassium, and will be gradually decomposed until it passes out with the urine. In this way many cases can be cured without surgical interference.

Hydrangea Arborescens-Seven Barks.

This article was introduced to the notice of the profession by Dr. J. W. Butler. He believed that it would dissolve calculi in the bladder, but subsequent trials with it by others have not proved its solvent powers. It doubtless is an invaluable remedy in many diseases of the urinary organs, resembling calculi. It is a direct tonic to the kidneys, energizing their activity, and in this way, it tends to arrest the formation of calculous deposits. Hence, it was regarded by Dr. Butler as a solvent of stone; but it proved, upon further trials, only a good prophylactic against the formation of calculi, and not a chemical solvent. It certainly acts as a tonic, and relieves irritation of the kidneys and bladder, and thereby, alternated with alkalies, would prove of great benefit in cases of calculi. It has also a very soothing influence over the mucous membranes of the air passages, and is a good remedy in chronic bronchitis. It should be fresh when used, as it soon loses its strength. It may be used in strong infusion, one to two ounces, every hour or two. A saturated tincture is made by adding the fresh root to alcohol (50°); dose, thirty to sixty drops.

Special Action.—Hydrangea has a specific action upon the urinary organs. It gives tone to the kidneys, and improves

their power of separating from the blood the wornout tissues of the body; and hence, tends to prevent the formation of urinary calculi. So active is this article in that respect, that Dr. J. W. Butler believed that it actually had the power to dissolve calculi when already formed. Although this may not be the case, yet, it does act as a prophylactic against the formation of calculi. It also relieves irritation of the bladder and urethra; and it is of material service in many cases of urinary diseases. It also relieves irritation of the bronchial mucous membranes. I have used it extensively in that condition of the system tending to the formation of calculi, and have always found it to act well when I could get a good fluid extract, the dose of which should be from twenty to thirty drops every one or two hours. The essential tincture may be made by covering the fresh root in alcohol (76°), steeping ten days, then percolating; the dose of this would be from half a drachm to one drachm. The infusion of the fresh bark of the root may also be used in doses of one or two ounces. It grows plentifully about the flat rocks in Middle Georgia. It should always be made into a tincture or fluid extract while fresh, as it, like other remedies, soon becomes worthless.

Acidum Muriaticum — Hydrochloric Acid, Muriatic Acid.

The phosphatic calculi are readily decomposed by hydrochloric acid. When it is given in as large doses as can be tolerated by the stomach, it gradually overcomes the alkalinity of the urine, arrests the formation of the phosphates, and even tends to dissolve calculi already formed. I have treated several cases in which there was excess of the phosphates in the urine, and symptoms of calculi in the bladder, and by the free administration of hydrochloric acid, large quantities of phosphatic sand would pass off with the urine.

I have now in my possession eight or ten particles of calculi, varying from the size of a shot to that of a large pea, which I dissolved in the air passages of a young man last year. After

taking the muriatic acid, well diluted with water, in doses of five drops every four hours, he coughed up one particle after another, until he discharged them all. My brother, Dr. B. F. W. Goss, of Lexington, Kentucky, sent me several calculi for analysis, which he had caused to be discharged from the air passages of a young man near Lexington. They were very similar to those in my possession. The dose of muriatic acid is from five to six drops, well diluted with water, every four hours.

Lithii Carbonas—Carbonate of Lithia.

The carbonate of lithia is one of the most active antilithics we have. In doses of three to five grains, I have used it in many cases, and have found it to act promptly. It unloads the blood of the acid that enters into the formation of the calculi. I have frequently alternated this article with the benzoate of sodium or the benzoate of ammonium, with positive success. It not only relieves calculous affections, but irritable bladder lithiasis.

CHAPTER IX.

Catalytics—Alteratives.

THIS is the second division of hæmatic medicines. They have hitherto been called alteratives, but I think that the term catalytic better expresses their action. They certainly operate in the blood to the destruction of certain morbid agencies or materials. The word is derived from the Greek words kata and luo and signifies to dissolve or break up, or to destroy; and means more than the word altero in Latin, alterative in English, which signifies to re-establish the healthy functions of the system without any sensible evacuation—a mere change. A catalytic not only produces a change in the blood, but combines with and conveys out certain morbid materials (materies morbi) from the blood. Although the action of these remedies is involved in some degree of doubt by the profession, yet we may say that we certainly know that many remedies of this class have the power to antagonize certain diseases by removing from the blood the morbid materials upon which the disease depends.

We may here state that the action of catalytic medicines is different in each disease for which they are respectively prescribed, consequently we may group them in orders according to the morbid states in which they are employed, as antisyphilitics, antiscrofulics, antiarthritics, antiphlogistics, antiscorbutics, anticonvulsives, antispasmodics, and antiperiodics. Some of these orders which have already been noticed, properly belong to this class. The names of these several classes suggest their individual uses. Catalytics act in the blood, and their ultimate effects are permanent. Each division of this class of

remedies tends to work out a peculiar operation in the blood, and their respective actions are to counteract, or to remove certain morbid materials or actions in the blood. In order that they may thus act they must pass out of the blood; and upon this ground there are some remedies that have long been used as alteratives,—as mercurials, that do not thus act, because they have the great tendency to inhere in the system; and although at first they may seem to counteract the morbid matter, it is found afterwards that they set up a very deleterious action of their own, often more hurtful to the system than that for which they were given.

Men have taken great pains to disprove the specific action of medicines, that is, they deny the fact that certain remedies are generally special in their action in one or more disorders; but who can deny that iodine is of special use in scrofula, or that corydalis, phytolacca and iodide of potassium are of positive benefit in syphilis, or that colchicum is of particular use in gout and rheumatism. Now if it cannot be denied, it must be admitted; and if admitted, then such actions must be in some degree at least specific. The word specific is somewhat objectionable, especially when misapplied by attempting to make it convey the idea that some particular medicine is the only one that can be used in a certain morbid condition of the system. Now in this order of remedial agents—catalytics, we have classed them according to their specific power to counteract certain morbid conditions. The proper prefix, "anti," implies a principle; which is, that the medicines in these several divisions do possess the power to neutralize or counteract these respective morbid conditions in the blood; that however that action may resemble a disease, it is always in effect to the contrary, and hence may be called an opposer of the disease.

Headland says: "The study of specific medicines is too much disregarded now. No doubt the mere hunting after specifics is a mark of ignorance and weakness in medicine, yet the neglect of them is a proof also of immaturity; for, in fact,

all medicines will be found specific in the perfection of the science."

This is true. Who can deny that all blood medicines, when rightly applied, are of specific use in certain diseases; and who can deny the plain fact that certain special symptoms can be met by particular remedies? No one can deny these facts. We have already stated that catalytics act in the blood, and that their action is permanent. When they cure a disease, they do so definitely, so that it is not liable to return. Many of this class of remedies, if given too long, are liable to injure the blood by lessening its fibrin and the number of its red corpuscles.

Each catalytic tends to work out a special operation in the blood, and this special action of remedies forms their known history. Catalytics differ in their action from restoratives. in this: catalytics work out their peculiar process in health, but restoratives exercise no influence in health; the materials they supply not being wanting, they pass out of the blood. Many remedies that are used as catalytics are poisonous minerals—as antimony, which wastes the blood and affects the nervous system. Mercury attacks the plastic element of the blood with greater vigor, and produces a fetid material out of it, and often causes a peculiar mercurial rash. It also has a great tendency not only to decompose the mucous tissues, but to decompose the osseous system, and hence caries of the bones is a frequent result of its administration. These dangerous results do not depend upon the quantity taken into the stomach, but upon the amount of hydrochloric acid in the stomach to convert it into a chloride, so that it may enter the absorbents; for as Headland says: "Mercury does not enter the blood until converted into a chloride." Iodine, given too long or to excess in health, tends to waste the body; salines in excess, long continued, dissolve fibrine and waste the blood; alkalies too long continued, do the same thing; arsenic, silver, zinc, lead and copper deteriorate the blood, and cause eruptive diseases; they also affect the nerve centers and cause disease. Lead causes paralysis and cramp in the muscles, colic, etc. Catalytics only remain in the blood a certain length of time, and then pass out. Mercury is not, as it has been supposed to be, a catalytic or alterative, because it does not readily, if at all, pass out of the blood; hence it should not be used. Iodine is an eliminative; it acts on the glands, as do some of the vegetable alteratives—as menispermin, corydalin, etc.

The diseases in which catalytics are useful are blood diseases, as scrofula, syphilis, gout, rheumatism, scorbutus, ague, and the eruptive diseases. It is now well known to all good pathologists, that in all the above diseases there is either morbid material in the blood, or morbid action going on in it which constitutes a pathological condition, a disease. Now, as before stated, the action of catalytics is to counteract these morbid agencies in the blood. It is a well established fact that remedies do severally act in the diseases named above, upon the law of catalysis. It is plainly shown that they have an action in the blood, and that the diseases which they cure are blood diseases. If, then, these catalytic remedies do counteract these blood diseases, and have no action on the nervous system, they must do so by some direct agency in the blood over the particles of which both exert an influence. indeed, are true hæmatic catalytics. They operate in the blood in such a way as to neutralize or counteract certain morbid materials contained therein; for catalytics are themselves foreign to the blood and must pass out of it, and in neutralizing those morbid materials that cause disease they doubtless combine with them, and with them are conveyed out of the blood. This affinity of chemical alkaloids and neutrals for other chemical compounds, plays an important part in the cure of disease.

I. ANTISYPHILITICS.

These medicines have been used to counteract or neutralize the syphilitic poison in the blood. It is fully established now that syphilis is traceable to a special poison. In the primary forms of syphilis, as chancre and early eruptions, syphilitic lichen, roseola and lepra, and also syphilitic iritis, mercury has been hitherto depended upon; but its signal failure to arrest the disease, together with its own disease-producing power, has led to the investigation of other remedies,—as gold (the chloride of gold and sodium), platinum, corydalis, and phytolacca. These remedies have been extensively tried by hundreds of physicians in the United States, and will soon be used by all schools of medical practice in this country and in Europe.

Says Headland: "The mercurial cachexy is quite as deplorable, and quite as incurable, as the syphilitic cachexy." He further says, on the same page: "The terchloride of gold may be used in syphilis in the same way as the bichloride of mercury." It may be used exclusively in its stead, and with far better results. It does its work speedily, and without injury to the constitution of the patient, if properly given.

In the year 1715, Dr. A. Pitcairn recommended gold as even more efficacious than mercury in the treatment of syphilis. Gold is applicable in primary syphilis where the constitution is affected by the poison. Iodide of potassium is the remedy in the latter forms; that is, in the secondary and tertiary stages. And here, too, corydalis, phytolacca and stillingia may be used. In periostitis, ulceration of the mouth and throat, and in rupia, I would give the iodide of potassium with phytolacea or corydalis freely. Under this treatment I have seen all the secondary and tertiary symptoms vanish in a few weeks. I have treated a great many cases in the primary stage with the terchloride of gold and corydalis or phytolacca, alternated; and at the same time, where there were chancres, touched them with chloride of gold in solution two or three times a day. I have taken a great many cases that had been treated for months with mercury, without material benefit, and relieved all the symptoms in a few weeks with the phytolacca, corydalis and iodide

¹ "Action of Medicines," page 205.

of potassium. After an experience of thirty years, I have abandoned the use of mercury in this and all diseases.

Auri et Sodii Chloridum-Terchloride of Gold and Sodium.

We have already said in our remarks on the therapeutics of syphilis, all that need be said about the power of gold to cure primary syphilis. It is not only applicable in that stage of the disease, but is a valuable remedy even after the system is thoroughly saturated with the virus. It may be given in solution thus: Take ten grains of chloride of gold and sodium, one ounce of hydrochlorate of ammonia, one pint water; dose, from half a drachm to one drachm three times a day. It should not be given with any other medicines, but may be alternated with other suitable remedies. Prof. John King speaks in the highest terms of this article, and says that he has cured a great many cases in Cincinnati and elsewhere with this remedy and the tincture of sheep laurel (kalmia latifolia), stillingia and iodide of potassium, given at separate times from the gold. In open chancre there is nothing better than a solution of the chloride of gold and sodium to wash the ulcers in. It should not be strong enough to decompose the sound flesh, but enough to kill the virus of the diseased matter in the sore, to prevent its reabsorption. If physicians will try this remedy, and others named in this list, as directed, I am confident that they will do as did John Hughs Bennett—lay aside mercury entirely.

Kalmia Latifolia-Ivy, Mountain Laurel, Calico Bush.

The kalmia latifolia is a very active remedy. It possesses marked antisyphilitic properties, besides being an arterial sedative. In large doses it is dangerous, producing paralysis, and finally death. In medical doses, say five to ten drops of the tincture, it acts as a catalytic, and has been used by a great many physicians with the best success. It may be combined with phytolacca or corydalis, or alternated with them. From the universal testimony of those who have used it, I have no

doubt that it is a valuable acquisition to our list of antisyphilitics; and though I have had no very great experience with it myself, yet I have used it with other active remedies, and consequently cannot tell what especial powers it possesses.

It may be used in the form of a tincture, which should be made by covering the freshly dried leaves in alcohol (76°). The dose should be from ten to fifteen drops; or perhaps from five to ten drops, three times a day. It should never be given in toxic doses, for we need not expect the medical effects of a remedy when we get the toxic effects. They are quite distinct. A great many medicines have been of such variable strength that no physician could give them with certainty.

Corydalis Formosa—Turkey Pea.

Corydalis formosa is one of the most positive antisyphilitics. Prof. Wm. Paine, of Philadelphia, says: "There is no fact better established than that corydalis, judiciously administered, has the power to remove syphilis from the system." When I commenced the practice of medicine the profession then depended on mercurials, sarsaparilla and the iodide of potassium. I began with the use of mercury, but its signal failures soon led me to search for something more safe and efficacious in the treatment of this and other diseases. These considerations induced me to try such remedies as were favorably spoken of by others. After repeated trials with the corydalis formosa I am fully satisfied that it does tend greatly to neutralize the poison of syphilis in the blood. It is more efficient in the secondary form, but, alternated with terchloride of gold, is a valuable remedy in the primary form.

There was a woman presented to me with syphilis. She had been treated with mercury by noted physicians of Atlanta, Georgia, and also of Augusta, Georgia, but with only temporary benefit. When I first saw her she had chancres about the anus, perineum, and very extensive ulceration of the throat, with prostration and considerable febrile symptoms. I at once

put her upon the tinctures of corydalis, stillingia and phytolacca, with one ounce of the iodide of potassium to the pint, and gave a teaspoonful of the mixture three times a day; at the same time I touched the chancres with a solution of the terchloride of gold, five grains to the ounce of water, and had her use a gargle of chlorate of potash with hydrastis. Under this treatment she rapidly improved, and in a few months was cured of every trace of the disease. And this is only one out of hundreds of cases of this disease that I have treated with like results.

I now meet all forms of syphilis with as much confidence of success as I do any other blood diseases. If we can get corydalis fresh, and prepare a saturated tincture in alcohol, and give it in doses of twenty to thirty drops, three or four times a day, it will never disappoint the expectations of the prescriber. A tincture has frequently been used by physicians, made up out of old and worthless roots, or it has been used in the form of corydalin, made out of the same kind of old root that had laid upon the shelves until it had lost its medical virtue. The corydalin is a good article when properly manufactured. If the physician wants to succeed, he must make his own tinctures out of fresh materials. The tincture of corydalis is made by adding four ounces to one pint of alcohol (96°). Dose, thirty drops.

Corydalin.—Corydalin is the active principle of corydalis formosa. Corydalin is one of our most certain and efficient alteratives and catalytics. It not only dislodges the materies morbi, but conveys them out of the system, thus purifying the blood from all poisonous material that may lurk in it. In syphilis this remedy displays its peculiar alterative powers; so also in scrofula it is a remedy of efficient powers. In syphilis it may be combined with stillingin, chionanthin, podophyllin and iodide of potassium or lime, thus: Corydalin three grains, stillingin one grain, chionanthin one grain, podophyllin one-fourth grain, given every four hours; at the same time the

patient may take the iodide of potassium or lime in as large doses as his stomach will bear. If there is debility, quinine and ptelin may be added to tone up the stomach and increase nutrition.

In scrofula the corydalin may be combined with scrophularin and iodide of lime, potassium or iron. In secondary syphilis, or in the tertiary form, I usually combine with the above alteratives iodide of potassium in very large doses, and gradually increase the dose, if it does not irritate the stomach. Corydalin seems to possess the alterative properties of the crude article, but the essential tincture and fluid extract are both reliable and convenient. The dose of corydalin is from one to two grains.

Stillingia Sylvatica—Yaw, Stillingia, Queen's Delight.

Stillingia is variously represented now by physicians. A few years ago it was much esteemed by the profession, when they used a pure tincture, made in alcohol, or a fluid extract made the same way; but as soon as druggists began to put it up as a compound syrup, made in water, by boiling the root, which was often not fresh, then the confidence of the profession in its virtues was soon lessened. Although it has an affinity for the syphilitic virus, and when pure will combine with, and take it out of the system through the excretory organs, yet when dry it is worthless; any preparation made of the dried root is likewise worthless.

I use the tincture, made by adding eight ounces of freshly crushed root to one pint of alcohol (96°). The dose of this is from ten to thirty drops every three hours, as an antisyphilitic. Before I found the article myself I used stillingin and the syrup made from the dried root, and found it worthless. But after finding it growing in my vicinity I procured the fresh root and prepared it, and determined to give it a trial. The first cases were two negresses and their children, born with syphilis. One of them had been treated by three physicians

with mercurials, sarsaparilla and iodide of potassium, with only temporary benefit. The main reason that they did not cure all four of the cases was that they gave the mercury first, thereby producing the secondary symptoms, and then gave the iodide of potassium in too small doses to neutralize the virus. I determined now to try the stillingia in all four of the cases. Both the women and their children had large Hunterian chancres all over the body, and the women had large ones about the labia. I made a pure preparation of the fresh root of stillingia, and put the iodide of potassium in it, and gave to each; to the infant children I gave it in syrup in small doses. All four cases began to improve, and in a few weeks every trace of the disease had disappeared. I continued the treatment for several months, and all four of the cases were cured perfectly. Now, it may be said that iodide of potassium had much to do with the cure. Doubtless it had, but it did not cure when given previously with the mercury and sarsaparilla. I give the above cases, and could give many more, but my space will not admit of it. I saw stillingia tested in the daily clinics in the College of American Medicine and Surgery at Macon, Georgia, last winter in a great many cases, with corydalis, phytolacca and iodide of ammonium or potassium. A great many cases were thus treated with success.

Stillingia influences the lymphatic glands, favoring the formation of healthy lymph, improving the blood and the nutrition. It is a good remedy in scrofula, where the tissues are feeble and not readily eliminated and renewed. It has also a direct tendency to the mucous surface, especially of the respiratory system, and also of the skin. It is a valuable remedy in chronic bronchitis and ministers' sore throat, hoarseness that occurs from speaking or from an inflammatory thickening of the larnyx and vocal chords. It has been very successfully used in chronic pharyngitis, cases of years' standing yielding to its medical powers. In all cases of chronic inflammation of the air-passages, with tumid, red, glistening mucous mem-

branes, and with want of secretion, stillingia may be given with success. In eruptive diseases of the skin, given with burdock, it will be found a valuable remedy. I make an essential tincture by adding eight ounces of the green root, crushed, to one pint of alcohol (96°). The dose will be from twenty to sixty drops three times a day. I usually add two ounces of this tincture to six ounces of simple syrup, add two drachms of iodide of potassium, and give a teaspoonful four times a day, well diluted with water.

Stillingin.—Stillingin is a concentrated extract of the stillingia sylvatica. This is one of the concentrated articles that has disappointed the practitioner in its effects, and it is partly, if not mainly, owing to the fact that it has been improperly prepared, or prepared from the dried root, which is nearly, if not entirely, inert. But if it be manufactured from the fresh root, and properly prepared, it is an active alterative and catalytic, and has considerable tendency to mucous tissues, especially the bronchial mucous surface. In syphilis, stillingin, corydalin, chionanthin and phytolaccin, combined with the iodide of potassium or lime, in doses to suit the age and condition of the patient, will seldom fail to eliminate the poison of the disease. It is also beneficial in many skin diseases, as scrofula, scrofulous tetter, salt-rheum and old indolent ulcers and cancer.

Stillingin is alterative and catalytic in a high degree, but it is not a full representative of the fresh root or tincture. This article, as before stated, has a very favorable impression upon the mucous surface of the air passages, relieving dyspnæa, preventing exudation, etc., by a peculiarly soothing impression, by which it lessens the cough and gradually removes the irritability of the mucous surface, and so modifies the secretions as to finally cure the disease. Stillingin should always be triturated, one grain to ten of lactin; the dose then is from two and a half to ten grains.

Oil of Stillingia.—This oil is obtained from the stillingia

sylvatica. It does not contain all the medical virtues of the root, but has an affinity for the mucous membranes of the air tubes. In chronic bronchitis, trachitis and laryngitis, ten drops of oil of stillingia to one hundred grains of sugar, triturated together, then one or two grains of the trituration given every hour or two, will materially aid in relieving the irritation and soothing the cough, and thereby aids in a final cure. a rubefacient, it is very beneficial in spinal irritation, and in any case where a strong counter-irritant is desired. Ten drops of the oil of stillingia added to four ounces of alcohol, forms a strong counter-irritant, and may be applied once or twice a day, as long as necessary. In croup, one or two drops of oil of stillingia, triturated with ten grains of white sugar, and given so as to melt slowly on the tongue, will generally give prompt relief; or it may be combined with oil of lobelia, and given until emesis takes place; then in small doses, so repeated as to produce nausea.

Two or three drops of the oil of stillingia added to one drachm of tincture of collinsonia, and twenty drops given every three hours, will relieve speakers' sore throat. The dose is from one-eighth of a drop to one drop.

Xanthoxylum Carolinianum—Southern Prickly Ash.

This species grows in the southern parts of the United States, especially on the Gulf of Mexico, and on the riverbanks near the Gulf coast. It grows to a tree, and has a rough, knotty bark.

Therapeutic Action.—This species of xanthoxylum is a stimulating alterative, and is very applicable in tertiary syphilis. I have used it, but always with other good alteratives, such as stillingia, corydalis, berberis aquifolium, lappa major, etc., and cannot determine its real value, but its stimulating and catalytic powers point to it as a very valuable remedy to remove waste, and at the same time, to aid reconstructive metamorphosis. The dose is from thirty to forty drops.

Arsenici Iodidum-Iodide of Arsenic.

Iodide of arsenic is prepared by gently heating, in a tubulated retort placed in a sand-bath, a mixture of one part of finely pulverized metallic arsenic, and five parts of iodine. The iodide is then re-sublimed to separate the excess of arsenic. This salt is of an orange-red color, and is a rather volatile solid, which is dissolved by water or heat.

Medical Properties.—Iodide of arsenic has remarkable power over certain forms of skin diseases; that is, such skin diseases as are characterized by itching, suppuration and an ichorous irritative inflammation. I have recently tested its powers in eczema capitis, eczema impetiginoides, and eczema rubrum, ozena, catarrh in a chronic stage, and several cases of old ragged ulcers that had resisted other treatment. In all scaly eruptions of the skin or scalp, this is one of our most positive internal remedies. In chronic strumous ophthalmia, with ulceration of the lids or sclerotic, it will be found a very prompt and positive remedy, given internally, with suitable local applications.

I have treated several cases of chronic catarrh, in which the patient was very susceptible to sudden changes of weather, attended by profuse flow of mucus from the nose, sometimes of an acrid, irritating character, attended likewise with excessive sneezing, and some cases with scabbiness and soreness of the nares. In summer catarrh, called hay-fever, where the patient is apt to have frequent attacks through the summer, the iodide of arsenic is one of our best prophylactics. In chronic otorrhœa, with corrosive sanious discharges, there is no constitutional remedy that equals this preparation. In diphtheria of a malignant character, characterized by a tendency to ulceration, the iodide of arsenic exerts a controlling effect, correcting that peculiar morbid condition of the blood upon which this disease In chronic diarrhea with ulceration, the iodide of arsenic will be found one of our most reliable remedies. It is indicated in all cases attended with corrosive, irritating discharges from the diseased tissues. In epidemic influenza, whether simple catarrh, or that form called "epizootic," it has proved to be a positive remedy.

I was recently called to treat a little boy some four years of age who had chronic catarrh of several months' standing. I found him with acrid and profuse discharge from the nares, with scabs in both nostrils, and frequent sneezing. I put him upon small doses of the iodide of arsenic, about a grain dissolved in one ounce of simple syrup, giving thirty drops every four hours, which effectually relieved the symptoms in ten or fifteen days.

I was recently consulted by a young lady at Carterville, Ga., for an old ulcer of the leg, which was constantly discharging very offensive, sanious pus, which was so corrosive to the surrounding parts that the ulcer was rapidly spreading. I put her upon the syrup of the iodide of arsenic, made by adding one grain of the iodide to the ounce of simple syrup, dose one drachm three times a day; at the same time I dressed the limb with salicylic acid dissolved in glycerine and water. Under this treatment the ulcer began to heal very rapidly, and the fetor disappeared in a few days, showing the direct effects of the remedy upon the blood. This young lady had taken other alteratives to no effect.

I was consulted by a gentleman recently for ozena. He had a constant corrosive discharge from the posterior and anterior nares, which had existed for several years, with a tendency to contract cold on slight changes of weather. I put him upon the iodide of arsenic, two grains to the ounce of simple syrup; dose, one drachm every four hours, with a wash of permanganate of potassium, to be thrown up the nares with a douche or syringe three times a day. He is rapidly improving under this treatment, and I think will soon be restored to his wonted health.

In scrofula, where the skin easily ulcerates, and there is an irritating discharge from the ulcers, I find no remedy that acts

so promptly and positively as this preparation of iodine. In that form of leucorrheea in which the discharge is of a corrosive character, the internal use of this salt, and the local application of salicylic acid dissolved in glycerine, or the permanganate of potassium dissolved in water, will readily correct this morbid condition of the mucous membrane. In all diseases of the skin and of the mucous membranes, where there is an irritative or corrosive discharge, this will be found to readily correct that state of the blood. It counteracts that peculiar sanious condition of the blood upon which this downward metamorphosis depends. It is a very valuable remedy in all humid skin diseases, and for those diseases of the mucous membranes characterized by a peculiar tendency to ulceration.

We meet with cases of bronchitis, associated with a strumous or psoric taint, manifested by a dry, scaly eruption on the skin and a thickened state of the mucous membranes, with a tendency to ulceration. Here the iodide of arsenic will prove a positive remedy. Associated with such a condition of the system we also meet many cases of hypertrophy of the heart, with dilatation and palpitation, and great anxiety in the præcordia, with dry cough, and not infrequently asthma. In the above conditions iodide of arsenic will often give the greatest relief. In small-pox of a malignant type, or in the anginose form of scarlet fever, where this depraved condition of the blood exists, this article will aid in modifying the symptoms. In lepra, impetigo, psoriasis, tinea, furfuraceous pityriasis, it acts better than arsenic alone. In all old, indolent or irritable ulcers, attended with sanies and burning pain, it is the remedy needed, and will act promptly.

Folia Carobæ.

The jacaranda caroba, jacaranda procera, bignonia, cystas anti-syphilitica, grow in Brazil and their leaves are used in the form of the tincture.

Therapeutic Action.— The evidence of several eminent physicians reports this plant a most powerful antisyphilitic. It is given in doses of fifteen to thirty minims three or four times a day, alternated with the iodide of sodium or potassium. I have used it with other antisyphilitics, and with very marked effect in several cases. It possesses very active tonic, as well as antisyphilitic properties, which render it an appropriate remedy for old worn-down constitutions, with syphilitic poison united with the debility. Dose thirty drops, ter in die.

Phytolacca Decandra-Poke Root, Gorget.

This is another remedy that has been much misrepresented from having often been used in the dry state, in which condition it is inert. It should always be tinctured in the fresh state, and when thus prepared it is a very positive catalytic or alterative. It has a specific tendency to, or an affinity for the glandular system and skin; hence it very powerfully influences the processes of waste and nutrition. It is a favorite remedy with me in secondary and tertiary syphilis, chronic skin diseases and scrofulous affections. Its great tendency to the glandular apparatus renders it a valuable remedy in inflammation of the mammary glands. It is also, applied locally and given internally, a very positive remedy in sore nipples. In small doses it is a valuable remedy in diseases of the mucous membrane of the rectum, ulceration, fissure and induration. It is favorably spoken of by some writers as a remedy in hæmorrhoids. Prof. Paine says: "It is of much service in secondary syphilis, combined with podophyllin and irisin. In induration of the liver, spleen and granulations of the kidneys it is of great value."

In that poisoned state of the glands as in bubo, either from syphilis or gonorrhœa, it is of material service. The expressed juice of the poke root is an excellent external application to chance, and will soon effect a favorable change in the condition of the ulcer. I use it in rheumatism, combined with colchicum or macròtis, with the most successful results. Its specific tendency to the mucous membranes of the stomach and bowels renders it a very harsh remedy in large doses. In toxic doses it possesses dangerous narcotic properties. A poultice of the fresh root, roasted, makes a very soothing application to the swollen joints in inflammatory rheumatism.

The best preparation is the saturated tincture, made by covering the fresh root, crushed, in alcohol (76°). The dose will be from five to thirty drops, three or four times a day.

I never use any preparations of this (and seldom of any other indigenous remedy) except the saturated tincture. This article grows abundantly in Georgia, and any physician can supply himself with this very valuable alterative at the cost of the alcohol.

Phytolaccin.—Phytolaccin is the active principle of the phytolacca decandra. The toxic effects of this article are a burning sensation in the gastric region, and tenderness of the bowels, especially in the rectum, followed by tenesmus, mucous and bloody discharges; and if long continued, it is apt to produce hemorrhoids. From this fact it is inferred that its specific tendency is to the mucous membrane of the stomach and bowels, and especially to the mucous membrane of the rectum. Some writers state that phytolaccin is an efficient remedy in ulceration of the bowels, and also in hemorrhoids, though I have not tried it in such affections alone.

As yet, phytolaccin has been mainly used as an alterative in syphilis, scrofula, and other glandular affections. I have used it much as an alterative, combined with corydalin, chionanthin, stillingin and iodide of lime or potassium, and have found this combination very certain in its effects. In acute rheumatism I have used it, combined with colchicum and macrotis, with the best of success; in fact, it seldom fails to cure that disease in a few days. In acute rheumatism I generally use the vapor bath first, with some arterial sedative to control the excited circulation; then give the above combina-

tion in sufficient doses to purge for a few days, and then lessen the dose.

In old, indolent ulcers, phytolaccin combined with muriate of hydrastia and the sulphate of zinc, will remove the septic condition and dispose the ulcers to heal very rapidly. In obstinate cases of hepatitis, phytolaccin combined with menispermin and euonymin, will be found an efficient and prompt remedy. In skin diseases, connected with a scrofulous taint, this remedy combined with syrup of rumex crispus, will act with promptitude and certainty.

In tertiary syphilis, the phytolaccin combined with quinine as a tonic, and given in doses of half a grain to one grain with two grains of quinine every four hours, is almost a specific; and it is a very prompt remedy in secondary syphilis when combined with corydalin, irisin, podophyllin and chionanthin. If the profession generally would try this combination, they would discontinue mercurials and use the true alteratives from the vegetable kingdom. The usual dose in diseases of the rectum, is from half a grain to one grain three or four times a day; as an antisyphilitic, from two to three grains three times a day; as an alterative to the liver and glandular system, from one-fourth to half a grain three or four times a day, and it should always be suspended in syrup or triturated in lactin.

Phytolaccin is sold by many druggists, but a great deal of it is made out of the old, dried root, and is worthless. If made out of the green root, it will answer every purpose of the article. The dose is from one-eighth to half a grain, three times a day, in white sugar.

Berberis Aquifolium—Oregon Grape.

The preparation used is the fluid extract. Dose, ten to fifteen minims. Besides its tonic properties, berberis aquifolium has catalytic or alterative properties, which entitle it to a place in materia medica. In constitutional syphilis, this will be found a good remedy. It not only has the power to aid the

eliminating functions in conveying the impure materials out of the blood, but it also possesses tonic properties, by which it aids digestion, assimilation and reconstruction. It aids in the elaboration of healthy plastic materials, out of which the tissues are to be replenished. Syphilis and scrofula oppose reconstruction; hence, this drug is of very material aid in curing these diseases.

Echinacea Angustifolia.

Echinacea angustifolia was presented to me by Dr. H. C. F. Meyer, of Pawnee City, Neb., as a "blood purifier," by which term he means that it is a remedy to remove blood poisons. He says that he and other physicians have cured many cases of serpent bites, prevented rabies in persons bitten by rabid dogs, and cured old ulcers of long standing. I have used it successfully in two cases of persons who were severely bitten on the exposed hand and arm, by rabid dogs, and it prevented hydrophobia in both cases. I have used this, in alternation with berberis aquifolium, corydalis, and stillingia, and have cured syphilis with this combination much more speedily than with the other articles without the echinacea. The dose of the tincture is from thirty to sixty drops.

Iris Versicolor-Blue Flag.

This article has lost its reputation from the same cause as many other valuable indigenous remedies; that is, from being used in its old, dried state. Professor John M. Scudder in his work, "Specific Remedies," says: "I am safe in saying that there has not been a good article in the market for a dozen years. The dried root of the drug trade possesses no more medical property than sawdust, and the preparations from it, whether in the form of a fluid extract or the irisin, are impositions." This is precisely my opinion of this, and many other articles of the materia medica; and the only way for the profession to protect themselves, is to make their own preparations at home.

If prepared from the fresh or recently dried root, iris versicolor is a valuable catalytic. It has a direct tendency to the lymphatic system, and powerfully stimulates waste and excretion. It is a valuable remedy in all diseases of the blood; it is one of our most positive remedies in secondary syphilis; it is a good remedy in enlargement of the thyroid gland, often curing the worst cases of this disease. It influences the whole glandular system; it increases the functions of the liver, and in large doses acts on the bowels as a purgative. Its power over the lymphatic system renders it a valuable remedy in syphilis. In combination with phytolacca or corydalis, it forms a most direct remedy against the deadly poison in the blood which constitutes this disease.

The profession a few years ago did not believe that it was possible to cure syphilis without mercurials, but now a large number do not give a single grain of mercury in this disease; and yet they are very successful in curing it even after mercury has failed altogether. Years ago it was used as a purgative, but its purgative property is very uncertain. Its specific tendency is to the glandular system, hastening the disintegration of effete and foreign matter in the blood, and conveying it out of the system; and in the full sense of the term, it is a catalytic. It breaks up and combines with materies morbi in the blood, and stimulates the eliminating organs to greater activity in throwing out this morbid material; hence its use in all that class of diseases characterized by tardy excretion, and a poisoned condition of the glandular system.

The tincture should be made of the fresh root, bruised, eight ounces to one pint of alcohol (76°). Dose, thirty to sixty drops, every three or four hours. It may be alternated with iodide of potassium.

Irisin.—Irisin is a concentrated principle of the iris versicolor. There are various properties ascribed to the crude article; it is claimed to be an alterative, diuretic, purgative, anthelmintic, and hydragogue; but although it may possess

all these properties, it possesses some of them in only a secondary degree. In large doses, say from fifteen to twenty grains, the irisin may produce vomiting and purging, but these seem to be its toxic rather than its therapeutic effects. In doses of one or two grains, repeated every four hours, it excites the salivary glands, liver, and the serous glands of the bowels; it sometimes excites the cutaneous exhalants, and increases the renal secretion. It may, to some extent, increase the action of the bowels by its action upon the liver, but in my hands it has not proven an active cathartic.

Irisin stimulates the liver, and increases its power to manufacture bile, and is valuable in all cases attended with torpor of that organ. It acts as a stimulant to the absorbents and lymphatics, and consequently is useful in cases where the blood is loaded with morbid materials, as in syphilis, scrofula, and similar affections. In such cases it may be combined with phytolaccin, podophyllin, corydalin, chionanthin and the iodide of potassium.

As a cholagogue, it may be given in doses of from half a grain to one grain three times a day; as an alterative, to excite the glands, it may be given in doses of two or three grains twice or thrice a day, triturated with lactin.

Cascara Amarga-Honduras Bark.

This is a new remedy brought to the notice of the profession by Parke, Davis & Co., of Detroit, Michigan. It is claimed, by several writers, to be a valuable antisyphilitic. Dr. A. Atkinson claims it to be a potent remedy for chronic skin affections, and also for the eruptions in the advanced stages of syphilis, especially the pustular variety of syphiloderma, and where there is debility connected with the disease of the skin. In these cases, this medicine gave appetite, invigorated the digestive apparatus, and thus improved the condition of the patient. The normal tincture, or fluid extract may be used.

Dose of fluid extract fifteen to thirty drops three times a day. It is also valuable in chronic catarrh.

Fucus Vesiculosus-Sea Wrack.

The saturated or normal tincture is used; dose from five to thirty drops, three times a day. It has been employed in scrofula, and to remove morbid deposits, and hypertrophy of the tissues. Recently, it has been very highly commended in obesity, and in some cases it has proven valuable. It, however, requires the proper dieting. The patient should be put upon nitrogenous food, so as to feed the muscular tissue, and cut off the supply of the adipose-producing elements. The exercise should be free, so as to promote waste and elimination. The fucus vesiculosus then will prove beneficial in removing the obesity. But the patient should avoid a fat-producing diet. Dose from thirty to sixty drops, ter in die.

Iodine. The Iodides.

Iodine and the iodides increase waste and excretion to some extent; but they do not, as do some vegetable alteratives, increase nutrition and blood-making, but simply aid in the removal of worn-out tissues. Since the introduction of the iodides of potassium, ammonium, sodium, lime and starch, iodine is not so much used. I seldom use iodine, as the iodides are more efficient, and less irritating to the gastric mucous surface.

Potassii Iodidum-Iodide of Potassium.

Iodide of potassium is a very good preparation; it powerfully stimulates retrograde metamorphosis, and hence is one of our best antisyphilitics, especially in the secondary and tertiary forms. Among my earlier cases of syphilis was one of twenty years' standing, in the tertiary form. It was an old man, who informed me that he had been treated with mercury some fifteen or twenty times, without success. He was covered with syphilitic vesicles, surrounded by copper-colored rings,

with ulcerations about the chest, periostic nodes, nocturnal pains in the bones, etc. I determined to try the virtues of the iodide of potassium. I put him on fifteen or twenty grains a day in the decoction of sarsaparilla, and increased the dose up to thirty grains a day. Under this treatment he soon began to improve, and in a few months was cured. I have treated a great many cases since, but I have usually alternated other remedies, or given them with the iodides. Iodoform is a good external remedy for bubo, applied in the form of an ointment. I have seen it do great good.

Ammonii Iodidum-Iodide of Ammonium.

The iodide of ammonium is a good preparation, and does not impair digestion like the iodide of potassium; it is valuable where there is headache from feeble capillary circulation. An iodide of ammonium may be prepared by taking equal parts of aqua ammonia and tincture of iodine in a bottle, and letting the mixture stand until the fluid is colorless. This is a nice preparation for goitre, as it does not color the skin. It is a good preparation for carbuncles, boils, buboes and glandular inflammations; it may be applied freely.

Amyli Iodidum-Iodide of Starch.

Iodide of starch is very fast coming into favor. It may be made by adding twenty-four grains of iodine to a little water; melt in a mortar, then gradually stir in one ounce of finely-powdered starch until it becomes of a uniform blue color; then dry with gentle heat, and keep in a well-stoppered bottle. The dose is from five to twenty grains, repeated three or four times a day.

Syrupus Acidi Hydriodici — Syrup of Hydriodic Acid.

This is almost pure iodine; and being more pleasant to the taste, and more readily assimilated than iodine, it will soon take the place of that mineral. It is also much more active, medicinally, than iodine itself, and is devoid of the irritant

properties of the iodine. This syrup of hydriodic acid is claimed also to be unalterable, as its combination with the syrup effectually protects it from the air, which not only renders it almost unchangeable, but much more palatable. It does not disagree with the stomach as iodine and the iodide of potassium are likely to do. It is a very valuable remedy in scrofula, syphilis, and all glandular affections, as tonsillitis, goitre, and lymphatic enlargements. Dose from twenty to forty drops in water.

Sodii Iodidum—Iodide of Sodium.

The iodide of sodium is now used very much as we formerly used the iodide of potassium, and is preferred by many physicians. Where the tongue is pallid, this salt is of direct utility, and may be given in doses of from one to fifteen grains. As a preparation it is superior to the iodide of potassium, especially in cases where there is a feeble circulation from asthenia. It may be used in all cases of tertiary and in many cases of secondary syphilis, in combination with the echinacea angustifolia.

II. ANTISCROFULICS.

Scrofula is a peculiar devitalizing poison in the blood, affecting both the solids and fluids. It is hereditary, and is transmissible from parent to child; it is only affected by such medicines as act in the blood. The disease deteriorates the blood, and through it, affects all the tissues of the body. A remedy to cure this disease, then, must act in the blood, and must have the power to counteract the poison of scrofula in the blood; and as common and pernicious as this deadly poison is in the blood, still there are but few remedies that exert any direct control over it. It has not only the power to deteriorate all the tissues, but also affects their nutrition. When this strumous cachexia has firmly seated itself in the system, or when it has been transmitted through several generations of a family, it is very difficult to eradicate from the system by any

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means. Iodine and burnt sponge were long relied on to cure the disease, but these proved insufficient, inasmuch as they did not improve nutrition. They doubtless help to eliminate the poison from the blood, and do good service when other remedies are given to improve digestion and blood-making. All the functions are more or less morbidly impressed by this disease.

The compounds of bromine and chlorine resemble iodine in their action, and they do not waste the tissues like iodine. Sulphur is said by some writers to aid in the cure of scrofula, in small doses. Headland thinks that iodine is the most reliable remedy in this blood-poison.

There are many catalytics which favor absorption, and are useful in other blood diseases, but not in this particular one. For instance, a remedy may exert a special action over morbid poisons—an action which is quite distinct from the influence over absorption—and which is required in this disease. It is believed that iodine not only increases absorption, but actually antagonizes the morbid influence in the blood; and besides needing a remedy to act on the absorbents, we need such remedies as generally improve digestion and nutrition. We want better blood, and to maintain a pure state of that fluid we must not only remove from it the morbid material that is poisoning the tissues, but we must replace it with a pure pabulum for the renewal of the tissues. To cure this disease, we want remedies to stimulate all the nutritive functions, and to get up and maintain activity of the eliminating organs.

Iodinium-Iodine.

I have already spoken of iodine and its preparations in my general remarks, and it would be useless to reiterate here. I have not spoken of the iodide of iron, which, in cases of scrofula connected with anæmia, is a very important remedy. The disease tends to impoverish the blood, consequently the iodide of iron often proves a valuable addition to the list of remedies. Very often, however, iodine may be given, and

alternated with the tincture of the chloride of iron. Chlorine and the chlorides have a favorable impression on this disease. The hydrochlorate of ammonium is a good form in which to get the good effects of chlorine in this disease. The bromides, as we have before stated, act much like iodine. The bromide of ammonium is a good preparation of bromine.

As iodine cannot be used continuously long at a time, it should be alternated with chlorine, in the form of the chlorate of potassium or ammonium, with such other remedies as may be indicated. Iodine has long been used in scrofula, and often with success. It need not be given in large quantities; a few grains of any of the iodides, three times a day, is sufficient; if given in large doses it is deteriorating to the blood.

Scrophularia Marilandica-Figwort.

Scrophularia grows in this country and in Europe. It is one of our direct antiscrofulics, and possesses considerable power; it increases excretion and elimination from the blood; it possesses the power of removing cacoplastic material from the system, hence its great utility in this disease. It not only acts very beneficially in scrofula, but in all that class of diseases resembling it. There are many skin diseases, partaking of the nature of scrofula, characterized by a strumous condition of the blood, and a great tendency to decomposition of tissue. In many skin diseases the local application is attended with marked benefit; I have used it a great deal in scrofula, combined with other articles hereafter to be named, and have derived much benefit from it. When fresh, it is very positive in its action. It has to be continued for a considerable time to get its benefits, but that is the case with all the remedies of this class. It requires patient perseverance to cure this disease.

The best preparation of scrophularia is the essential tincture, made by adding eight ounces to one pint of alcohol (60°) . Dose, from thirty to sixty drops. The fluid extract, properly made, is also a good remedy.

Alnus Rubra-Tag Alder.

This shrub is indigenous to the United States, and grows plentifully, in and near swamps, in Georgia and several other states. It is said to bloom every month in the year but one. The blooms, or tags, are possessed of a feeble alterative property. The bark, in its fresh state, is possessed of an active antiscrofulic property. It powerfully stimulates waste and nutrition, and hence is a very valuable remedy in scrofula. It not only tends to increase retrograde metamorphosis, but also acts as a direct tonic upon the digestive apparatus, and increases the power of appropriation. It is not only a true catalytic, removing worn-out tissue or morbid material from the blood, but its tonic property at the same time increases digestion and assimilation. This article, like corydalis and menispermum, possesses not only an alterative property, but with it an active tonic power. These two properties combined make it one of our best remedies in scrofula. It is also a good remedy in those diseases of the skin in which there are pustular eruptions, as eczema, etc. In scaldhead it will act very positively when combined with burdock.

I prefer a fluid extract, which should be made from the fresh bark. The tincture may be made by covering the bark with alcohol (50°). Dose, sixty drops, repeated three times a day. The dose of the fluid extract is the same.

Alnuin.—Alnuin is the active principle of alnus rubra. This is regarded as an alterative, tonic and sub-astringent, but its astringent properties are feeble, and its alterative effects are only secondary. Its specific action seems to be upon the gastric glands and mucous surface of the stomach, giving tone to that organ. If given in one or two grain doses, it will increase the appetite; consequently it may be inferred that it is a tonic to the gastric mucous surface. It is found to excite the gastric glands, increasing the discharge of gastric fluid, and thereby aiding digestion. In all cases of feeble digestion it becomes a very important remedy, and for this purpose it may be combined

with gentian, hydrastin, apocynin, etc. In cases of diarrhœa, dependent upon, or connected with, a deficient secretion of gastric fluid, alnuin is a valuable remedy, and may be combined with astringents, and will very materially aid their action. In cases of dyspepsia, depending upon both muscular debility and deficiency of gastric secretion, alnuin may be combined with strychnine or extract of nux vomica. The dose is from one to three grains. The fluid extract is a very reliable and convenient form of giving it, and the dose is from half a drachm to one drachm. The tincture may also be used in doses of two drachms.

Rumex Crispus—Yellow Dock.

This article is indigenous to the United States. The rumex crispus has a direct tendency to the skin and lymphatic glands, and hastens those transformations so very essential to the removal of effete or morbid material from the blood. It directly stimulates elimination and the secondary digestive process which converts the effete materials into forms suitable for elimination; hence it is a direct remedy in scrofula and kindred diseases, the malignant character of which depends upon a morbific material retained in the system. These morbid products are often retained from a feeble state of the proper eliminating emunctories. Thus, accumulating in the blood, they finally degenerate into either tuberculous or scrofulous matter by which the blood is so impaired in its tissue-forming powers that disorganization of the tissues takes place. Rumex acts, like some other remedies of this class, as a tonic to these emunctories, and stimulates the glandular system, thereby producing the transformations that are essential to the normal perpetuation of the organic structure of the body. It is well known that it increases the appetite by increasing the flow of gastric fluid, bile and urine; hence it is a tonic to all the functions of elimination and nutrition.

Rumex has never received that attention to which it is entitled, in strumous diseases. It is one of our most direct alteratives to the glandular system and has very marked effect upon many skin diseases. In cases of anemia it may be combined or alternated with the pyrophosphate of iron. In feeble children, born of scrofulous or phthisical parents, this remedy, perseveringly administered, will change that morbid diathesis. In many skin diseases, as dry and humid tetter, rumex, alternated with lappa (burdock), will be found very positive in action. There are no remedies more direct in antagonizing that peculiar form of blood disease than rumex crispus and lappa. Most of these skin diseases are kindred to scrofula, and the virus, from its peculiar composition, locates itself upon the skin because it has an affinity for that tissue. The lappa and rumex having a like affinity for the skin, as well as the glandular system, so act on the skin as to neutralize the virus and to remove the disease.

There are various preparations in use, but where it is plentiful a strong aqueous extract may be used in the form of a syrup, in doses of from thirty to sixty drops. The saturated tincture may be made by adding eight ounces to one pint of alcohol. Dose, ten to sixty drops, three or four times a day.

Rumicin.—Rumicin is a concentrated extract of the rumex crispus. It has recently been discovered that it is identical with chrysophanic acid. It is a mild alterative of the secondary class, and although not so active and immediate in its therapeutic effects as some others, yet it is quite useful in certain diseased conditions of the system. Its specific tendency to the lymphatic system renders it a valuable remedy in diseases connected with a diseased condition of that part of the economy. Not only does it exert a marked influence over the lymphatic vessels, but it has an affinity for the glandular system generally. It is endowed with a power to hasten those transformations that result in general elimination of effete materials from the body. Rumicin materially assists the process of secondary digestion, and thereby aids in converting the effete materials into products suitable for elimination. It, in other

words, seems to set up catalysis in the system. In scrofula and cancer, et hoc genus omne, where the virus mainly depends upon the retention of the detritus in the blood, rumicin is an appropriate remedy, as its peculiar tendency is to stimulate the glands and other emunctories to the vigorous performance of their functions. It may be combined with other alteratives as may be indicated. The usual dose is from one to three grains. It is best triturated. I use the fluid extract and tincture.

Cistus Canadensis, Cistus Creticus—Rock Rose, the Rose of Crete.

The cistus is a native of Syria, and of many of the islands of the Mediterranean Archipelago, grows in dry, sandy situations, and is cultivated elsewhere for its beautiful flowers. There are other species.

The rock rose is a direct antiscrofulic. It is one of those remedies that act with such certainty that its specific tendency cannot be denied. It is a direct stimulant to the processes of waste and repair, and hence is fully entitled to the name of catalytic or alterative. It increases nutrition as well as elimination, hence it is a valuable remedy in scrofula and all kindred diseases. It is the internal remedy that many "cancer doctors" rely on to cure cancer, but it does not cure that formidable disease. It is not only a valuable remedy in strumous affections of the tissues of the external body, but has a specific affinity for the glands of the bowels, and is a good remedy in that form of chronic diarrhea connected with a strumous diathesis.

Cistus may be used in the form of an aqueous extract, in doses of one to two drachms. The essential tincture should be made by covering the freshly dried plant in alcohol (76°). Dose, from twenty to sixty drops, repeated three or four times a day.

Arctium Lappa, Lappa Major-Clot Bur, Burdock.

This is a well-known biennial plant, growing in the fencecorners and along the lanes about most farms in this country and in Europe. The root and seeds are mild but certain catalytics or alteratives. The seeds are thought by some to be the most active. This is a very valuable remedy in that form of struma that attacks the skin, known as dry tetter. In this form of skin disease it acts with great certainty, but it is slow in its action, and must be continued for a considerable time, say from four to six months. It should be applied locally, in the form of an ointment, and given internally in the form of a fluid extract or essential tincture. Prof. King says that it is a good remedy in scurvy, gout, syphilis, scrofula, boils, stye on the eye and whitlow. It is much used by the people in this country, and with success. I have often prescribed it in all forms of tetter, and in that affection it is a valuable remedy. It should be given in sufficient doses, say a wine-glass of the infusion or syrup.

The aqueous extract may be made and formed into a syrup, the dose of which will be from one to two drachms. The saturated tincture may be made by adding alcohol (76°) to cover it. Dose, from thirty to sixty drops, repeated four times a day.

Menispermum Canadense—Yellow Parilla.

Yellow parilla is indigenous to this country, growing on the borders of streams, twining on bushes and trees, and bears small seed in a one-seeded drupe. The root is long, of a bright-yellow color, and of a bitter taste.

It has been used with success as a catalytic in strumous conditions of the system, and when connected with a debilitated condition of the digestive apparatus, it is of special benefit. In addition to its alterative property, it is a tonic to the stomach and liver. It acts on the glandular system, and in large doses it is diuretic and purgative. It may be used in any form of strumous disease, as scrofulous, cutaneous, gouty, rheumatic,

syphilitic or mercurial cachexia. Its direct tonic power would point it out as an appropriate remedy in scrofula when associated with other good remedies. I have often used it thus with other alteratives with very positive results.

The solid extract is manufactured, but is, as now made, a poor representative of the root. The fluid extract, when made from the fresh root, is a good article, and may be given in doses of thirty to sixty drops, four times a day. The essential tincture is made by adding eight ounces of the freshly dried root, crushed, to one pint of alcohol (76°). Dose, thirty to sixty drops, repeated three or four times a day. This, by itself, has cured cases of scrofula. It is a valuable alterative.

Menispermin.—Menispermin is the active principle of menispermum canadense. Menispermin is a tonic and alterative, and has a marked tendency to the gastric and salivary glands. If given in large doses, say three or four grains, and continued for a considerable time, it will produce free discharge of saliva, swelling of the fauces, and sometimes inflammation of the mouth, and increased flow of urine. In combination with chionanthin, xanthoxylin and podophyllin it will produce ptyalism. In hypertrophy of the liver, or chronic hepatitis, the above combination will restore the liver to a healthy condition. In dyspepsia, connected, as it frequently is, with a torpid state of the liver, menispermin, combined with apocynin, muriate of berberina and fraserin, and given in small doses before meals, will be found to aid very materially in restoring the digestive apparatus to a normal condition. In cases of syphilis connected with debility, this, combined with corydalin, phytolaccin and iodide of potassium, is an efficient remedy. scrofula, combined with scrophularin and syrup of black walnut, menispermin is an appropriate remedy. The usual dose is from half a grain to one grain, three times a day, as an alterative; as a tonic, from one-fourth to half a grain, three times a day; triturated, one grain to ten of lactin, the dose is from five to ten grains. This is a valuable remedy in scrofula.

Chimaphila Umbellata—Pipsissewa, Prince's Pine.

This article is indigenous to this country, growing in old pine fields, or in pine woods, to the height of three to six inches, and is very easily known by the leaf-rib being white and the leaf a deep green, lanceolate, and serrated. Years ago it was much used as an antiscrofulic, and attained such a reputation as to give it the title of "King's Cure." It is a very certain diuretic, acting mildly, and at the same time imparting tone to the stomach and urinary apparatus. I have cured atonic dropsy with this article and iron. Its mild, tonic powers, and its very active eliminating property, point to it at once as a very efficient remedy in scrofula and all strumous affections depending on detention of morbific matter in the blood. I have introduced it in this class of remedies, that it may be used where more direct remedies cannot be had. It influences the eliminating process in a very positive manner, and also aids in blood-making, and hence cannot fail to do good in scrofula.

It has often been used in the form of infusion of the old, dried herb, but this is not as good as the fluid extract or the essential tineture made from the green plant. It contains a principle that is volatile, which is lost in drying. The tineture may be made by adding eight ounces of the green plant to one pint of alcohol of about 76°. Dose, one to two drachms every three hours.

Ampelopsis Quinquefolia-Wild Grape.

This is a little vine trailing along the fences, on rock-piles and up trees, found in many parts of the United States and known by the common name of the Virginia creeper, or the five-leaf vine. It generally has five leaves upon each footstalk and bears a small black berry about the size of the winter grape. The leaves and bark are the parts used, and should be fresh, as they soon lose their virtue. Ampelopsis has a specific tendency to the lymphatic system, giving tone and energy to it, and thereby favoring elimination of morbific materials from

the blood. It is an antiscrofulic of considerable virtue, and is a valuable remedy in that condition of the system called leucocythæmia, characterized by excess of the white blood-corpuscles and enfeeblement of all the nutritive functions. This condition is dependent on an unhealthy state of the lymphatic glands and vessels, and ampelopsis is one of the remedies which correct that condition. It directly stimulates and gives tone to these vessels and increases nutrition. In squama, or scaly disease of the skin, it will be a good remedy associated, or alternated, with lappa.

The extract, as manufactured, has not proved of value with me. I use the fluid extract made from the fresh leaves and bark, in doses of one to two drachms three or four times a day. I have also used an aqueous extract with success.

Ampelopsin.—Ampelopsin is the active principle of the ampelopsis quinquefolia. This remedy seems to have a specific tendency to the lymphatic tissues or vessels. In scrofula, angioleucitis, syphilis, and some other diseases, these vessels are obstructed, and as ampelopsin has a specific tonic influence upon them, it so energizes them as to enable them to perform their healthful functions. In leucocythæmia there is an excess of the white corpuscles of the blood, attended with a feeble state of nutrition which lessens the nutrition of the whole organization. As this disease depends upon an unhealthy condition of the lymphatic system, it is quite apparent that ampelopsin is an indispensable remedy. In all diseases connected with such a condition of the lymphatic system it is indicated, as it has a specific influence over these vessels. In squama, or scale disease, this is one of our best remedies, in small doses. In syphilis, cancer, and other malignant diseases associated with a diseased condition of the lymphatics, ampelopsin is an important remedy. Thus it seems that ampelopsin is mainly directed in its action to the lymphatic system, giving tone to it, and enabling its vessels to throw off morbid matter from the system and thus aid in the cure of disease. The dose is half a grain to one grain four times a day; or triturated, one grain to ten of lactin, the dose is from five to ten grains.

Pilocarpus Pennatifolius—Jaborandi.

Jaborandi is a South American plant lately introduced to the profession on account of the marked effects said to have been produced by it. It is reputed to have reduced glandular swellings in a short time. It is also said to have cured diabetes. Several medical journals of Europe contain elaborate accounts of cures effected by this remedy within the last two Jaborandi was taken from South America to India and there its reputation grew until it reached Europe. If it proves to be a specific for diabetes its value will be greater than any remedy recently presented to the profession. If it is half as active in diabetes as represented, it will prove a great acquisition to the armamentarium medicarum, but it is to be feared that, like many popular remedies, it will prove to be less valuable than at first represented. I hope the profession will, however, give it a fair test and report the result in the various journals.

It may be made into a saturated tincture by adding eight ounces to one pint of alcohol. The dose would be from half a drachm to one drachm every three hours. For glandular swellings the tincture may be used internally and a strong infusion applied on cloths to the swollen glands, and renewed every hour or two. An extract will doubtless be made if it prove as valuable as it is represented.

Pilocarpine.—Jaborandi and pilocarpine, in large doses, produce profuse sweating, giddiness, vomiting, and cephalalgia, but pilocarpine is more apt to be followed by these physiological effects than the tincture of the leaves, or the fluid extract. It diminishes the temperature considerably after the sweating. In doses of one-sixth to one-fourth of a grain, it greatly increases the flow of saliva. Small doses quicken the heart's

beats, but large doses slow the heart's action, especially when pilocarpine is introduced into the veins. In doses of one and a half grains pilocarpine produces purging, with bloody stools. As a diaphoretic, it acts most powerfully. Its diaphoretic action is of utility in rheumatism, dropsy and other febrile diseases.

III. ANTIARTHRITICS—ANTIRHEUMATICS.

The medicines in this class are blood-medicines, which exert a direct influence over certain disorders of the tissues dependent on some fault in the processes of digestion, assimilation and nutrition. Each disease in this group seems to be caused by, or at least to be associated with, a morbid material in the blood; and though the system may endeavor to eliminate this offending matter, it seems to be unable to do so. The chief diseases of this list are diabetes, oxaluria, lithic deposit in the urine, and arthritic inflammation, that is, gout and rheumatism. Although some of this list cannot be clearly traced to a definite poison in the blood, yet they are arranged under this head, and appear to be curable by the same set of remedies, and according to a very similar law in therapeutics.

All the antiarthritic agents, or remedies, act directly in the blood. Colchicum has a direct tendency to impoverish the blood, especially when given in purgative doses; but in smaller doses it acts in some peculiar way so as to eliminate from the blood that morbid material upon which gout and rheumatism depend. It certainly has the power to diminish the quantity of uric acid in the urine. The other remedies used in gout and rheumatism possess the same power. Citric acid, and some other vegetable acids, have the power to correct that peculiar blood-poison upon which scorbutus or scurvy depends. In the nutritive process there are certain operations going on in the blood, the continuance of which in a healthy condition is essential to the maintenance of a perfect state of the organization.

And even though these processes are interrupted, they do not cease, but progress in the wrong direction.

It is the natural office of the various emunctories, on the one hand, to select and appropriate out of the constituent elements of the food the materials for the continual repair of the tissues and functions of the body, and, on the other hand, to gradually change and convey out of the body the waste of the tissues. But let either of these functions be interrupted, or perverted, it results in the formation of various morbid products, by which the health is often seriously impaired. The evil may originate in the digestive functions, by which deleterious agents may be generated in the blood, or it may be an interruption in the eliminating organs, so that they do not throw off the effete material from the blood; and disease is the result. Now, it is plain that we need both tonics and catalytics in order to meet both these deficiencies. Hence, some of our best catalytic remedies are possessed of both tonic and catalytic properties. In the treatment of arthritic diseases, catalytic medicines are demanded. It is necessary to meet and neutralize the morbid material or process in the blood. Very often eliminatives are of great utility; by acting on the skin, kidneys and bowels, they aid in ridding the blood of poisonous matter. That catalytics tend to neutralize the poison of gout and rheumatism is now generally conceded.

In the other diseases in this group, as lithiasis and diabetes, restoratives seem to be more directly indicated than catalytics. For the cure of diabetes there is no known positive remedy, though there are some that have been used successfully. I have succeeded in correcting this morbid condition in several cases. As regards scorbutus, or scurvy, it is successfully treated by citric acid, or the citrates. There are also some vegetable remedies now presented to the notice of the profession that are represented as being very trustworthy. I would not, however, advise these to be used to the exclusion of the citric acid, but alternated with it.

There are many secondary antiarthritics or antirheumatics, —as diuretics and diaphoretics. These act by merely removing the acid from the blood by elimination through the skin and kidneys, and are only auxiliary to the cure. To make a permanent cure the state of the digestive organs must be so improved that the excess of acid is no longer generated in the stomach. Diaphoretics and diuretics can aid in removing it for the time being, but cannot correct the source of its formation. They cannot be curative. This is one of the great sources of failure in permanently curing rheumatism and gout. The final cure depends not only upon removing the acid, but upon so toning up the digestive apparatus that an excess may not be formed, and upon so stimulating the activity of the excretory organs that the acid may be eliminated as rapidly as it is formed. Colchicum acts as a stimulant to the excretory organs, and only temporarily suspends the disease. Macrotis acts on the excretory organs, but at the same time it is a powerful tonic to the digestive organs, and consequently acts as a curative. Acetate of potassium acts as a diuretic and antilithic and is often, like the alkalies, of much service in ridding the system of its excess of acid.

Colchicum Autumnale—Colchicum.

This plant is a native of Europe, growing in meadows and low, rich situations. The root and seeds are officinal. The toxic effects of colchicum are emeto-catharsis; it is acro-narcotic and dangerous in large doses. There is great discrepancy of opinion in regard to the antiarthritic power of colchicum, but it is a well-established fact that it does, in some way, aid in ridding the system of the arthritic poison, let it be what it may. One very great reason why it has failed with some physicians is because they gave it in purgative doses, which prevent its medical effects in the blood. I use it a great deal, and always aim to use it short of purgation.

I use a tincture made of the fresh seed, in alcohol (76°),

four ounces to the pint. Of this I give from five to ten drops, three or four times a day. I used the wine when I first began with it, but soon found that it was very uncertain in action: and hence I abandoned it. I use the tincture of the seed. I have tried the root, but unless it is fresh it is worthless.

In acute rheumatism or gout, I reduce the circulation with aconite or veratrum before giving the colchicum. I always combine colchicum with some other remedy, particularly macrotis, chionanthus or pipsissewa, or phytolacca decandra. Many persons cannot tolerate large doses of colchicum.

Macrotis Racemosa, Cimicifuga Racemosa—Black Cohosh, Rattle Weed.

Macrotis is one of our most certain and positive antiarthritics. It has not only a direct tendency to the muscular tissue, but an affinity for the lactic acid (or lithic acid, as the case may be), and acts as a tonic, preventing the formation of the acid in the blood. It is only applicable in chronic rheumatism, or in the acute form, after the inflammatory symptoms have been subdued by proper measures.

There seems to be a special nervous element in rheumatism, as in that form that attacks the fibrous tissues, as pleurodynia, sciatica, and those painful attacks of the muscles, called myalgia. In these cases of nervous rheumatism there is no remedy more prompt in action than macrotis. It may be associated with colchicum, and if the mucous membranes are pale, the tongue broad and coated with a whitish fur, it may be alternated with alkalies; in such cases I prefer the acetate of potassium, as it is a diuretic, and aids the other remedies in eliminating the morbid matter from the blood. Wherever there is high febrile reaction, I always precede this remedy with the arterial sedatives, or associate them together, and I find that it acts with promptitude. It is the remedy for rheumatism, no matter where located. For many years I treated rheumatism with colchicum and guaiac, but I often failed to remove the

disease; now I meet this obstinate agonizer of the body with almost as much confidence as I do any other inflammation.

In that painful affection of females, called dysmenorrhoea, which is, doubtless, a rheumatic condition of the uterus, the macrotis, given in the interval, seldom fails to relieve it in a few months, and not unfrequently in the first month. It has a direct tendency to the uterus, and is a valuable remedy in amenorrhoea. In cases of pregnancy in rheumatic subjects, there is often considerable suffering with false pains and cramps. For this condition five or six drops of macrotis may be given three times a day.

The eliminating tendency of macrotis makes it a special remedy for all eruptive or exanthematous fevers, as small-pox, scarlatina, measles, and others of this class. Exanthematous diseases have a tendency to locate on the mucous surfaces very frequently, and macrotis is a valuable remedy in these cases. It assists the *vis a tergo* to translate the disease to the surface.

This is a favorite remedy with me. It should be made from the fresh or recently dried root, into a tincture, by adding four ounces of it to one pint of alcohol (96°). The dose is from five to fifteen drops, four times a day.

Menthol-Japanese Mint.

The menthol is a stearopten of the Japanese mint-oil. It is only slightly soluble in water, but dissolves readily in alcohol, ether, and in both the fixed and volatile oils; it melts at the temperature of the body, and when further heated, volatilizes without decomposition. It is an active antiseptic, very similar to its homologue, thymol. Its smell is less pungent than that of peppermint, and its taste is sharp, penetrating the mouth.

Therapeutic Action.—It has long been in use in Japan and China as a remedy in headache and neuralgia. Locally applied it will often relieve either nervous headache or neuralgia. It is also used in the early stage of summer colds. It relieves sciatica and lumbago, and toothache, when locally applied.

Aster Œstivus-Red Stalk Aster.

The red stalk aster is a small plant growing in the western prairies of the United States. It has several roots about the size of a goosequill, and is of a bitter taste. Several years ago I saw this article recommended for rheumatism, and so procured it and determined to give it a trial. The first case that presented itself was that of a young lady with inflammatory rheumatism. All the joints were very much swollen, and the accompanying fever considerable. After opening the bowels I gave a strong infusion of the red stalk aster root, in doses of a wine-glassful every two hours. I left, having given nothing but the above infusion. When I returned the next day my patient was sitting up in a chair, bathed in a profuse perspiration, and quite improved. I continued the remedy a few days longer, gradually lessening the dose, and it resulted in a complete cure. This convinced me that this was a valuable remedy, but it is so difficult to procure the fresh article that I now seldom use it; but if I could procure it I would use it in the form of an essential tincture, say eight ounces to one pint of alcohol (76°). The dose would be from one to two drachms.

If some of our western physicians will test this remedy, they will find it valuable.

Acidum Salicylicum—Salicylic Acid. Salicinum—Salicin.

Physiological Action.—Large doses have been known to produce gangrene of the lower extremities, and in some cases it has produced cystitis, obstinate constipation, and coldness of the extremities. It is liable also to produce injurious effects on the bones. It is safer when given with an alkali. Sometimes we are liable to get impure preparations of the remedy, which contain carbolic or cresylic acid. If continued too long it may produce urticaria, irritable erythematous and vesicular cutaneous affections, sore throat, with quiet delirium, etc.

Since the acid has been given with alkaline salts there is less liability to these toxic effects. And since Lloyd and Brothers have furnished it made from the oil of wintergreen, it is much safer. The salicylate of sodium can be given with safety, in doses of five to eight grains, every four hours. I find that the acid readily dissolves in spirits of nitre (nitrous ether) as completely as in anything I have tried.

Therapeutic Action.—Salicylic acid is a very active antipyretic, in doses of three grains given three or four times a day. It is also an antiseptic of considerable power. This article is used in acute rheumatism; and when given in three to four grain doses, with one drop of aconite, every three hours, it lowers the temperature, relieves the pain, and reduces the articular swelling.

Salicin acts similarly, and some physicians prefer it, but I have not used it as much as I have the salicylic acid, and the salicylate of sodium or ammonium. It is also applicable in fevers, where there is septicæmic poison in the blood. It may also be used in many diseases exhibiting gangrenous tendency. In eczema of the hands or feet, cancer, burns, fetid perspiration, it may be dissolved in a strong solution of borax, and used locally. The salicylate of sodium is more soluble than salicylic acid, and less irritant to the stomach, but it is required in larger doses, say ten to fifteen grains three times a day. The salicylate of lithium is also a very active preparation, and is non-irritant. It acts strongly upon uric acid, removing it from the blood. This last salt will act well in rheumatism or gout. The dose ranges from five to eight grains, in a wineglass of water three times a day. Any of these salts can be given in alternation with other antiarthritics. I alternate it with bryonia, rhus toxicodendron, macrotis racemosa, or colchicum, or any other active antiarthritic.

Salol.—Salol, a derivative of salicylic acid, is of much value in rheumatism, sciatica, and in some forms of neuralgia. Wyeth and Brothers make compressed triturates of this, and some other new remedies, such as aloin, boric acid, acetanilide, antifebrin, iodol, thalline sulphate, etc. Schieffelin & Co.

manufacture salol pills, which are convenient for administration and give satisfaction. I have not used salol as yet, but I have used salicylic acid with the best of success in all forms of rheumatism, and notice in essays in the various medical journals that the use of salol is giving good satisfaction to those who have tried it. I do not know its precise composition, nor its dose, and can only refer the reader to the makers.

Polymnia Uvedalia-Bear's Foot.

Leaves opposite, three-lobed, acute, decurrent into the petiole; lobes sinuate, angled; rays elongated; stalks four to six feet high; round, rough and prickly, spotted; lower leaves large, supposed to resemble the bear's foot. Flowers yellow, about an inch in diameter; compound, the rays much longer than the involucre. It blooms in August. The roots are numerous; thickest in the middle, from one-fourth of an inch to an inch in diameter, and resemble the potato, having an aromatic, sweetish, balsamic taste; and when fresh there is a good deal of oil in them, which turns to resin when dried. It grows plentifully in Georgia, in rich bottoms, or near streams and in hedges.

Medical Properties. — Polymnia has long been used by non-professionals in rheumatism, in the form of an ointment; it has also been used in white swelling, and with good effect. Dr. J. W. Pruitt has called attention to it as a remedy for enlarged spleen, and as an alterative in scrofula. It is doubtless a good remedy given internally and used as an ointment in old, chronic cases of rheumatism; it is also a good alterative. I use the saturated tincture, made by adding eight ounces to one pint of alcohol (96°). Dose, from ten to thirty drops, every four hours.

Rhus Toxicodendron-Poison Oak.

Rhus toxicodendron resembles in its physiological effects, rhus radicans (a climbing variety), and rhus venenata (swamp sumach).

The preparation most commonly used is the tincture of the leaves, which should be freshly gathered, preferably in the fall. Dose, one to two drops, three times a day.

Pathological Action.—The effects of rhus toxicodendron upon the skin are well known. Some persons are so susceptible to the toxic action of this plant that they are very readily poisoned by the exhalations from it, especially when it is wet. Some persons can handle it with impunity. But on most persons it causes redness of the skin, swelling of the parts, with a vesicular eruption, and an intolerable itching. This effect may spread rapidly over the entire body, and also extend to the mucous membranes, producing conjunctivitis, and an eruption of the throat, thirst, cough, nausea, vomiting, vertigo, stupefaction. etc. Sometimes it produces colicky pains in the abdomen, which are worse at night, or when food or drink is taken. Diarrhea may occur, with tenesmus and bloody stools, diuresis, bloody urine, or complete retention of urine. And sometimes fever results, with delirium of a typhoid character. There are rheumatoid pains throughout the entire body, but more severe in the joints and lumbar regions, which are aggravated by heat and rest. It has a direct affinity for the fibrous structures. often produces a numbness in the lower limbs. These effects follow the internal use of it in too large doses, as well as the external application.

Antidotes.—Grindelia robusta is a good application for local poisoning with this drug. But mercuric chloride, with the chloride of ammonium, has satisfied me in all cases. I

usually prepare it thus:

Ŗ	Merc. chlogrs.	30
	Ammo. chlo 5	1
	Aqua pura 5	8

M. Sig. Apply lightly once or twice a day, for two or three days.

This cures this troublesome disease produced by the rhus toxicodendron or the R. venenata.

Therapeutic Effects.—This plant attracted the attention of Dufresnoy in France about the close of the eighteenth century, who noticed the accidental poisoning of a student suffering from eczema. He observed that the eczema disappeared on the subsidence of the rhus poisoning. Rhus tox. is a favorite remedy with homeopathists, in all cutaneous affections of a vesicular type. And they prescribe it in the chronic form of rheumatism, whenever that disease is better when the patient is moving, and worse, when at rest. This remedy acts well in the above-named conditions. It is also a valuable remedy in vesicular erysipelas, and typhoid fever. Phillips strongly recommends it in rheumatism of the fibrous structures. It acts well in herpes zoster, and pemphigus. Where the pain of rheumatism is worse when at rest at night, this article cures it promptly for me in every case.

It is a very useful remedy in paralytic affections. When the patient complains of numbness of the limbs, face, tongue, or of any part, with creeping pains, lameness, and finally paralysis, then rhus tox. will do good. Ulceration, with rhagades, pustules that break and discharge fluid, and red, shining swelling of the skin, evening fever, with diarrhæa, delirium, violent headache, phagedenic scaldhead, soft tumors on the scalp, inflammation of the parotid glands, acne rosacea about the mouth and chin, discharges of bloody saliva, all call for this drug, and in such cases, it will act positively. It should never be given in large doses, as it then produces toxic effects, especially on the skin.

Propylaminum—Propylamin.

Propylamin is made from the brine of the herring, and has attracted some attention as a remedy in rheumatism; but some physicians condemn it as not only inert, but really disease-producing. Prof. John M. Scudder says: "I employed it in quite a number of cases of rheumatism, and at first thought well of its action, but, developing marked typhoid disease in some

cases, I became alarmed and dropped it." Doubtless the above case was one in which typhoid was being already slowly developed. I have had many cases of typhoid fever, setting in as rheumatic fever, in which I did not give propylamin. I have also given it frequently in a neighborhood where typhoid fever was prevalent, yet I never saw any disease produced by it.

In cases of acute rheumatism, given in small doses, in mint water, until it produces diaphoresis, and then discontinued, it will often prove of much value. I have given it in chronic rheumatism, but did not derive any benefit from it. It may be given in doses of from a fraction of a drop to one or two drops, every three hours. A good way to give it is to add ten drops to four ounces of mint water, and give a teaspoonful of this every three or four hours until it produces gentle diaphoresis and slight sickness of the stomach; then discontinue it and follow with macrotis racemosa, phytolacca, or eupatorium purpureum. This course will often cure the worst forms of this disease.

Eupatorium Purpureum-Queen of the Meadow.

Eupatorium purpureum is one of our best diuretics, and doubtless through this influence over the urinary organs it aids very materially in ridding the blood of that peculiar poison which produces rheumatism. It not only acts upon the urinary organs, but also upon the genital organs. It acts forcibly upon the kidneys, and is much used for this purpose in the treatment of dropsy. In small doses it is very popular in some painful affections of the kidneys and bladder, resembling calculi of those organs, and hence is often called by non-professionals "gravel weed." It is also much used in small doses in irritable bladder, diabetes insipidus, incontinence of urine, and in calculous affections. Prof. E. M. Hale says: "I have used it successfully in calcareous concretions in the bladder and kidneys; in diabetes insipidus, (it may prove useful in glycosuria); in dysuria, enuresis nocturna and other conditions of irritation of

the bladder from direct or reflex causes." Some writers claim that it has cured impotency. Some praise it as a remedy for sterility, threatened abortion, ovarian and uterine atony, inefficient labor-pains, amenorrhæa, dysmenorrhæa, and as a general uterine tonic.

The tincture may be made in alcohol (76°), eight ounces to one pint. Dose, thirty to sixty drops.

Caulophyllum Thalictroides—Blue Cohosh.

Caulophyllum, papoose root, or squaw root is a smooth, glaucous plant, purple when young, with round stem, one to three feet high. Its leaves are biternate or triternate, leaflets oval, petiolate, pale beneath, and from two to three inches long. The flowers appear in May or June. It is a handsome perennial plant, growing in all sections of the United States, near running streams, and in low, moist, rich grounds, also in swamps and on islands. The seeds ripen in August, and when roasted make a decoction which resembles coffee. Its active principle is called caulophyllin.

Caulophyllum is a good remedy for rheumatism of the joints and of the extremities, and of the short muscles. It is a specific for threatened premature labor, in small doses, say five to ten drops of the tineture three times a day; or even doses of one or two drops in most cases are sufficient. In large doses it acts as a powerful stimulant to the uterus, and hastens tardy labors. I have used it frequently in cases of dysmenorrhæa, connected with the rheumatic diathesis, and have found it to act very favorably. It does not act as promptly in ordinary rheumatism as some other remedies, but in that variety that attacks the fingers and toes, it acts promptly.

The tincture is made by adding eight ounces of the fresh root crushed to one pint of alcohol (76°). Dose thirty to sixty drops. The ordinary dose in rheumatism is about twenty drops every three or four hours.

Lithii Bromidum-Bromide of Lithium.

We have already spoken of the antispasmodic action of this salt in a previous chapter. The lithium it contains will doubtless render it an appropriate remedy in gout and chronic and sub-acute rheumatism. It has not been sufficiently tested in these affections to enable us to pronounce positively in regard to its value as an antirheumatic. It is worthy of a trial, however, in cases attended by great pain.

Phytolacca Decandra-Poke Root.

Phytolacca has a direct effect upon the eliminating organs. It hastens those transformations so necessary to the separation of any effete or worn-out material from the tissues. It also has the power of combining with morbid materials in the blood, and conveying them out of the system. I have already spoken of this peculiar power of phytolacca in my remarks upon catalytics. I have often used phytolacca in the treatment of rheumatism, both chronic and acute.

Its ashes are said to contain over fifty per cent. of caustic potash. The ashes and the inspissated juice of the plant act as escharotics when applied to cancers and indolent ulcers. The most active parts are the roots and berries. Its sphere of action includes the skin, mucous and fibrous tissues, the periosteum, and the cerebro-spinal nerve centers. It has effected some very notable cures of chronic rheumatism for me. I use the saturated tincture in doses of from five to ten drops three times a day, well diluted with water.

Ammonii Benzoas-Benzoate of Ammonium.

In chronic or acute rheumatism, where the urine is scanty, dark or smoky-looking, the benzoate of ammonium is directly indicated, and will be found to act promptly. Dr. Seymour recommends it highly in gout when the small joints are red and swollen, or when fluid is deposited in the joints of the great toes; also in cases where the lithate of soda exists in the joints

of the fingers (gouty concretions). Prof. E. M. Hale says: "I have had excellent success with it in rheumatism. (The benzoate of potassium will act more satisfactorily in some cases.)"

It is also highly praised in those cases of jaundice arising from mere arrest of the secretion of bile, and not from obstructions of the ducts. It is better than benzoic acid in such cases, because it is more readily dissolved in the stomach. It is highly spoken of in dropsy from diseased liver, or following scarlet fever. It was first recommended by Dr. Todd in dropsy after scarlet fever. The indications for it are very scanty—darkened, bloody-looking urine, with a strong, pungent odor, and a red, thick sediment. It is a very prompt remedy in irritable bladder from the deposits of uric acid or the triple phosphates. It is also useful, combined with the tincture of phosphorus in oil, in brain-fog—use a preparation of one ounce of benzoate of ammonium to one pint of syrup; dose, ten to twenty drops.

Apocynum Androsemifolium—Dog's-Bane, Indian Hemp, Black Silkweed.

This plant is of the same genus as the A. cannabinum; they both are called dog's-bane, and Indian hemp, also silkweed, and resemble each other in many respects.

According to "Griffith's Botany" the apocynum androsemifolium has a large, perennial root, of a bitter taste; the stem smooth, three to five feet high; root and plant lactescent, with a tangled, fibrous bark; leaves opposite, petiolate, ovate, entire; smooth above; slightly pilose beneath. The flowers (which distinguish it from the A. cannabinum) are in cymose racemes, longer than the leaves, nodding, with minute bracts on the peduncles; the calyx is small, five-cleft; the corolla is flesh-colored, campanulate, and divided into five spreading, acute segments; there are five stamens, with short filaments; anthers long, sagittate and connivent; there are five glandular appendages alternating with stamens; the ovaries are two, ovate, and

supporting two sessile stigmas; the fruit is a pair of slender, acute, drooping follicles, containing numerous oblong, imbricated seeds, attached to a central torus, furnished with a long, silk-like, downy pappus, which floats the seed in the air. It grows in most parts of the United States, on sandy soil, or on hill-sides, flowering in June and July.

The A. cannabinum has a perennial, creeping root, five to seven feet long, also lactescent; the stem is from two to three feet high, bark like the above; the leaves are ovate, somewhat pubescent; the flowers which are the distinguishing peculiarity are upon paniculate cymes, smooth, and many-flowered, small, and of a greenish or a yellowish-white color externally, with a tinge of pink within; the calyx sublunate, with segments, about as long as the corolla. It grows also in most parts of the United States, in waste lands or in the woods; it flowers in July and September. The root is intensely bitter; color black when first dug, turning to a dark-brown when dried. The cortical portion is very thick, and when powdered resembles ipecacuanha.

I have been thus particular to contrast the two plants, because of their striking resemblance, although their specific action is quite different. The apocynum androsemifolium acts upon the stomach as an emetic, and in small doses as a tonic. It acts upon the skin as a diaphoretic, upon the bowels as a cathartic, and upon the brain as a mild stimulant to the venous capillaries, thereby relieving headache. It also has that peculiar power to set up catalysis in the system, combining with, and conveying out of the blood morbid materials. This peculiar property renders it a remedy for rheumatism as well as pock. I have an old work, written by an Indian physician, in which he states that this was one of the remedies used by the Indian tribes for pock, and he states that it was successful. He also says that it is remarkable for curing rheumatism, when given so as to produce diaphoresis.

I use it in the form of an infusion, one ounce to one pint

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of warm water. Dose, half an ounce to one ounce; the dose of the saturated tincture is from twenty to thirty drops.

Bryonia Alba—Tetter Berry.

Bryonia alba contains a bitter glucoside, bryonin ($C_{48}H_{80}$ O_{10}), soluble in alcohol and water, but insoluble in ether. This is the medical principle,

Physiological Action.—Locally applied, bryonia sets up irritation, then inflammation of the skin. And in an undiluted form, it sets up inflammation in the serous and mucous tissues. It vesicates the skin when applied in a concentrated form. Taken internally, it will produce gastritis, which may be fatal. Introduced into the pleura, it may result in pleuritis, which may also prove fatal, with effusion. It has a direct affinity for the serous, synovial, and muscular, as well as the fibrous tissues. It also has a direct tendency to the bronchial mucous membrane, causing dry, continuous cough, with soreness in the chest, just behind the sternum. In large doses, it produces frontal headache, congestion of the brain, vertigo, epistaxis, and hepatic and renal engorgement, with burning pain in the region of the liver; also jaundice, vesical tenesmus, with depression of the heart. In doses of thirty drops, it produced on me, severe tenesmus and tormina, with bloody mucous discharges from the bowels, for several days.

Therapeutic Action.—Bryonia is one of our best remedies in all serous inflammations, after they have reached the second stage, especially in pleurisy and pleuro-pneumonia, and in pericarditis, after aconite has reduced the pyrexia. In this stage it checks the effusion and promotes the absorption of fluid. In rheumatism, after the fever and swelling have been reduced with aconite and salicylate of sodium, then bryonia will relieve the pain and stiffness of the joints. In catarrh, with a dry cough, soreness, or pains in the chest, bryonia is a most efficient remedy. It is a remedy for headache, with pyrosis, gastric pains or soreness of epigastrium, constipation, cholera infantum,

and congestion of the liver. It is a valuable remedy in croup in children. It will prevent mammitis, if used in time, in doses of one to two drops, every two hours. It is a positive remedy for shooting pains, that are aggravated by movement.

The saturated tincture of the root is the preparation used. The dose is one to five drops; for children from one-eighth to half a drop.

IV. ANTISCORBUTICS.

This class of remedies is curative of scurvy and purpura. These diseases seem to consist in a want of certain elements in the blood. The blood is thin and poor from a want of albumen. fibrin and blood corpuscles, but an excess of alkaline salts. This produces a tendency to hamorrhage, decomposition of tissue, and great debility. It is a common disease with sailors who are deprived of vegetables and fruits, and who live on salt provisions too long; and sometimes those on land have the disease from living in the same manner. This is not always the cause of scurvy and purpura, for there occur aggravated cases of either disease in persons who have lived on the ordinary mixed diet. A deficiency of animal food and milk may cause these diseases. There seems to be a natural proclivity in some constitutions to these diseases; and whenever such persons are deprived of certain articles of food, this latent morbid action is aroused and produces its natural results.

Vegetables, potatoes and acid fruits, such as lemons, strawberries, cherries, and even peaches and apples, tend to cure as well as to ward off the disease. The acids contained in potatoes, lemons, and some other fruits, have a direct action in the blood, which tends to counteract the diseased action. Under the use of the above class of remedies the amount of fibrin and blood corpuscles is regularly increased up to a healthy standard; for it appears that in land or sea scurvy there is an increase of alkaline salts in the blood, and these salts, thus in excess, exert a directly destructive influence on the fibrin and blood corpuscles. Not only is citric acid efficacious, but other vegetables and their acids are also very valuable. Some wild herbs have been used with good effect, as dock, sorrel, stonecrop, etc. Lactic acid is believed to possess antiscorbutic power, and hence a milk diet is also good in this disease. Fresh meat contains lactic acid, and it has been found to be a good diet for scorbutic patients. These acids, being foreign to the blood, act as catalytics. They combine with the morbid material and convey it out of the blood. Purpura or scurvy is an active disease, and requires a catalytic medicine to counteract it. Citric acid will counteract it, and so will some other vegetable acids. In the same way lemon juice and orange juice are valuable in influenza.

It is believed that Asiatic cholera consists in a rapid degeneration of the blood, produced by some powerful septic influence; and it is believed that vegetable acids render patients less liable to this formidable disease. There are many other diseases, the cause of which is not yet understood, that depend upon something wrong or wanting in the blood; and the successful treatment of these diseases depends to a great degree upon ascertaining their pathology. When we understand the true pathology of disease, it is not difficult to find a direct remedy for any pathological condition that may exist. Whenever we study disease according to symptoms, and not by name, then will we learn to use direct and not routine medication. We want positive indications for remedies, and then we may expect that these remedies will act with certainty. Our entire nosology must be revised, and our materia medica restudied. We want remedies, the action of which is uniform and certain, and to get such we must know the peculiar symptoms that point out a remedy. All other medication is guess-work, and can only be successful in the rare cases in which it may accidentally hit right. We can not afford thus to depend upon uncertainty in our benign profession.

Acidum Citricum-Citric Acid, Lime Juice, Lemon Acid.

Citric acid very frequently cures scorbutus without any other remedy save a proper diet, consisting of fresh meat, and vegetables, as potatoes, and acid fruits. It has long maintained its specific action in this affection, being directly antagonistic to the disease, by removing from the blood the excessive alkalies contained in it in the form of citrates; these being foreign to the blood are eliminated from it. Citric acid or lime juice, with acid fruits, as grapes, oranges, cranberries, gooseberries; and vegetables, as radishes, watercresses, sauerkraut and potatoes, and fresh meats, will generally cure this disease. If great debility exists, tonics may be added, as bark, hydrastis canadensis. If the gums are inclined to bleed they may be washed in tincture of gum myrrh alternated with alum and iron. The skin should be washed in water slightly acidulated with vinegar or lime juice and not wiped, as the acid will be absorbed and act in the blood. The patient's drink should be acid, as cider, buttermilk, lemonade, etc. If there should be a great tendency to hæmorrhage, ten or fifteen drops of muriate of iron may be given three times a day, in water. I have never had a case that did not promptly yield to the above treatment.

Agave Americana—Century Plant.

Dr. Penn, United States Army, gives a very favorable report of this remedy in the treatment of scurvy. He says: "From observing the effects of the maguey (Agave Americana) in the cases which have occurred in this command, I am compelled to place it far above that remedy which until now has stood above every other—lime juice." It was used by Dr. Penn in the form of an expressed juice of the leaves, made by roasting in ashes, then pressing. He gave from two to three ounces daily. Doubtless a saturated tincture, or the fluid extract, properly made would be equally successful. The dose of either would be much smaller, say from one to two drachms three or four times a day.

Rhus Glabrum-White Sumach.

Rhus glabrum has considerable reputation in diseases connected with a scorbutic condition of the mucous membranes. It has been successfully used in bowel affections connected with a scorbutic diathesis. It has one advantage over lime juice, and that is that it is a tonic and antiseptic. It has a fine effect in ulceration of the mucous tissue and gums from mercurials or from a scorbutic tendency.

I use a saturated tincture of the bark of the root of white sumach, in doses of one or two drachms, every two or three hours. The seeds are said to be good in asthma and emphysema of the lungs.

Rhusin.—Rhusin is the active principle of rhus glabrum, upland sumach. This article possesses some astringency, and perhaps some slight alterative properties, but it is most remarkable as an antiscorbutic. In combination with iron and acids, rhusin may be given with success in purpura, scurvy, zymotic dysentery, and other malignant diseases where there is a septic tendency. In scurvy, rhusin may be prescribed with confidence, especially when combined with acids, as follows: Take ten grains of rhusin and sixty grains of lactin, triturate, then add two ounces of syrup and thirty drops of nitric acid; mix thoroughly, and give from forty to sixty drops, three times a day in a wineglass of water. This is an efficient remedy in this disease. In chronic diarrhea connected with a septic condition of the system, as is indicated by a spongy state of the gums, and a vitiated or impaired appetite, with enlargement of the abdomen, the above combination will be found to have a happy effect. Externally applied, the rhusin triturated ten grains to the ounce of glycerine, is a good application to hæmorrhoids, and also to aphthous ulcers of the mouth and throat. Combined with baptisin it is a good application to gangrenous sores or ulcers. It is also a good remedy in chronic or typhoid dysentery, in doses of one or two grains every three hours. The usual dose is one to five grains.

Rumex Crispus-Yellow Dock.

Rumex crispus has decided antiscorbutic powers. It is resolvent and depurative in its action, and doubtless contains an acid that acts like the before-mentioned articles, in this disease. Prof. Hale reports several cases of dyspepsia cured by it, and also several cases of chronic bronchitis; all of them, doubtless, were connected with a scorbutic or scrofulic diathesis. It has been given in cases of chronic diarrhoea connected with scrofulous constitution. It exerts remarkable control over scrofula and scurvy, and all diseases associated with, or caused by, such constitutional taints. It is best used in the form of a saturated tincture, or a fluid extract. The dose varies from ten to thirty drops.

Acidum Carbolicum-Carbolic Acid.

Carbolic acid has long been used to cleanse old, foul ulcers, and as a disinfectant, but not until recently have I seen any account of its curative effects in scorbutus. Its peculiar power over morbid or septic conditions in the solids and fluids of the body, indicate it in scurvy. I have never used it in this disease, and therefore cannot speak experimentally of its powers. It is worthy of a trial in any case where the old and approved remedies are not at hand. It may be given in tincture: ten drops to four ounces of alcohol; dose, five drops.

V. ANTICONVULSIVES.

It is frequently the case that convulsive diseases depend on a peculiar and not well understood condition of the blood. It is true, they are manifested by disturbance of the brain, giving rise to derangement of the nervous system. In some cases the functions of the spinal cord only are affected. There does not appear to be any nervous lesion to account for the convulsions in tetanus, which may arise from a mere irritation of the end of a nerve. Epilepsy may likewise be due to bony spicula, or to a tumor pressing on the brain.

Convulsions are in many cases the reflected nervous irritation of worms in the bowels; but, oftener than otherwise, they are the result of a diseased condition of the blood, and only that class of convulsions caused by this condition of the blood can be influenced by blood-medicines. It is a well-known fact that convulsive diseases, particularly epilepsy and hysteria, are inherited. It seems that the strumous diathesis, according to Drs. Cheyne and Watson, are predisposing causes of epilepsy. This would show that epilepsy, then, is a disease of the blood; and it is well known that in some kidney diseases, where the urea is retained in the blood, the urea will cause epilepsy. Hysteria is often associated with anemia.

Many medical substances, in toxic doses, produce nervous symptoms. Lead, zinc, copper and mercury, cause paralysis, and even epilepsy; opium produces coma; belladonna produces delirium; aconite and hemlock produce paralysis; hydrocyanic acid produces convulsions; Indian hemp produces catalepsy. These are effects produced through the blood, and cease as soon as the offending article is eliminated from it.

These convulsive disorders may be treated by attacking the cause in the blood; or we may, as is too often now done, attack the morbid manifestations in the nervous system, which is only temporary palliation. It is true that convulsive disorders are in some cases dependent upon a morbid condition of the nervous system, but in many instances they are the direct result of a morbid condition of the blood. Nitrate of silver was long used to cure epilepsy, and it was given as a catalytic. The ammoniosulphate of copper has been used with some apparent advantage. The sulphate was long used in this disease, and sometimes with good effect. The silver salt blackens the skin, and has been abandoned.

As I stated, we have remedies that act directly upon the nervous element in these diseases. They may be resorted to for a temporary suspension of the convulsions, but are not to be depended on in a constitutional and confirmed case. These

temporary remedies are lobelia, gelsemium, assafœtida, valerian, sulphuric ether, belladonna, etc.

Chloroformum—Chloroform.

In doses of from five to thirty drops, chloroform arrests convulsions. It may be repeated in small doses, say five to six drops, but not in large doses. I have frequently given it in doses of five to six drops in colic, every fifteen minutes, until it gave relief, or until the patient had taken twenty-five to thirty drops. In biliary colic, from gall stones, this drug acts well. And it also acts as a prophylactic, if given in the forming stage, preventing the deposit of cholesterin, and causing its solution when it is deposited in the gall-bladder. For this purpose, adults may take fifteen to twenty drops three times a day, well diluted with water. Children may take one to two drops, according to age.

Chloral Hydras-Hydrate of Chloral.

Besides its hypnotic effect, already noticed, chloral hydrate is a most valuable antispasmodic. In puerperal convulsions, after delivery, there is no remedy equal to chloral, and to prevent spasms, it acts equally well, if the brain is engorged, and there is headache. It strengthens the cerebral circulation. It produces sleep, prolonged and refreshing, and no unpleasant after-effects occur, as is the case when opium has been taken in full doses. It should be given in doses of fifteen to thirty grains, and never over that, as it is toxic in over-doses. As soon as it quiets the brain and nervous system it should be discontinued.

Ammonii Bromidum-Bromide of Ammonium.

While bromide of ammonium is a direct stimulant to the nerve centers, it is also a catalytic, and in some degree increases waste and probably improves nutrition. I have used this remedy with very remarkable success in many cases of epilepsy and convulsive diseases of children. And in those cases that

are caused by a peculiar condition of the blood it very soon suspends the spasms. It often effects permanent cures, and always alleviates the symptoms. There are many cases of this disease, where, from a peculiar state of the blood, there is disordered innervation, followed by epilepsy. Here I use bromide of ammonium. In convulsions of children, from predisposition, bromide of ammonium, in doses of three to five grains every four hours, is a good remedy. The dose for adults is ten to twenty grains, repeated three times a day. It is a prompt remedy.

Potassii Bromidum-Bromide of Potassium.

Bromide of potassium is a good remedy in those cases of epilepsy associated with irritation of the urinary organs, and particularly the genito-urinary organs. In some cases where the cerebellum is involved, and there is spermatorrhea, or satyriasis, or excitement of the venereal appetite, then the bromide of potassium will be found a good remedy. It should be given in large doses, say ten to fifteen grains, three times a day, largely diluted with water. This article has a direct catalytic effect upon the blood (I have used it in many peculiar blood-poisons), and at the same time it controls the nervous element in convulsive diseases; consequently it is a very appropriate remedy in such cases.

Verbena Hastata—Blue Vervain, Wild Hyssop, Simpler's Joy.

The vervain is a catalytic of considerable power, and has been used by some noted advertising doctors with good effect. It was used, however, with eupatorium perfoliatum and polygonum punctatum, both of which, as diuretics and diaphoretics, eliminate from the blood, so that it cannot be known what part each one of these remedies displays in the cure. In such "shotgun" prescriptions it is impossible to study remedies.

This article is worthy of a trial. Dose of the essential tincture, thirty to sixty drops, thrice daily.

Scutellaria Lateriflora-Scull-Cap, Mad-Dog Weed.

Where the nerve centers are under the influence of morbid material, scutellaria manifests its direct influence on the irritated nerve centers, controlling spasmodic action. It seems to exert a special influence upon the gray nerve tissue, and is a very prompt remedy in diseases involving this structure. It is a valuable remedy in chorea; none act more promptly in this disease than scutellaria. It is a valuable remedy in subsultus tendinum following fevers, and in delirium tremens. In epilepsy, catalepsy and hysteria, this remedy acts promptly. In these diseases it may be alternated with the bromide of ammonium, and combined with iron. Some grave cases of hysteria have yielded to this remedy in large doses, alternated with chalybeates. In chorea, it may be also combined with iron. In that condition of irritability termed nervousness, scutellaria is a good remedy. It should always be freshly made.

The scutellarin is a good preparation if made from the fresh plant. The fluid extract is a good preparation, made the same way. The tincture may be made from the fresh plant by adding eight ounces to one pint of alcohol (76°). Dose of the tincture or fluid extract, fifteen to thirty drops.

Scutellarin.—Scutellarin is the concentrated medical principle of the scutellaria lateriflora, or scull-cap. This is one of our best nervine tonics and antispasmodics. It gives tone to and quiets the nervous system at the same time, without any unpleasant effects whatever. In chorea this is a most certain and prompt remedy, and may be combined with cypripedin and other remedies that may be peculiarly indicated. In subsultus tendinum, occurring in low forms of fever, the scutellarin is quite reliable and may be given freely. In delirium tremens it may be combined with cannabis indica and will be found as efficient as opium, without its objectionable after-consequences.

In epilepsy, catalepsy and hysteria it may be given freely, and will be found one of the most reliable nervines in these diseases; it may be combined with cypripedin and given in large doses so as fully to impress the nervous system. In nervous depression, consequent on uterine disease or menstrual irregularities, the above combination affords immediate relief of the nervous symptoms. In most cases where opium has been hitherto prescribed, this remedy will be found much milder and equally as beneficial, for it calms without any after evil consequences. The usual dose is from one to five grains; average dose two grains.

Lithii Bromidum-Bromide of Lithium.

Bromide of lithium has only recently been introduced to the profession, but for two reasons it is now preferred to the other bromides as an anticonvulsive. It acts more speedily upon the brain and cord, and then it is not liable, like bromide of potassium, to be followed by unsightly eruptions on the skin. It has been curative of apoplexy and epilepsy. Dr. Mitchell reports several cases where this salt proved curative in these affections. Prof. E. M. Hale says: "It may be given where the other bromides fail to effect a cure, and that with success." The dose varies from ten to thirty grains three times a day. From ten to twenty grains is the usual dose.

Simplocarpus Fœtidus.—Skunk Cabbage.

The chief preparation of the skunk cabbage used is the tincture, made by adding eight ounces of the crushed fresh root to one pint of alcohol (76°). Dose three to five drops. This remedy is highly spoken of by some writers. I have not used it alone, but have used it combined with lobelia in spasms of children, but could not thus determine its real merit. It certainly exerts considerable influence over the nervous system. It relieves irritation, and stimulates functional action. It is claimed to be a very positive antispasmodic, and is used by many physicians in asthma, and other spasmodic affections; but it, like many other remedies, has been almost always so combined with other remedies, that its individual power is unknown.

Cocculus Indicus—Fish Berry.

The cocculus indicus has lately been presented to the profession as an anticonvulsive. I am now treating a case with it, alternated with ailanthus, and it is getting well. I tried the bromides of potassium and ammonium in this case and they both failed, although I gave them in large doses, gradually increased up to some thirty or forty grains three times a day. I used a saturated tincture of the cocculus indicus in doses of five drops, gradually increased up to sixty, three times a day, alternated with the ailanthus. It should always be commenced in small doses and gradually increased.

Ailanthus Glandulosa-Tree of Heaven.

Ailanthus has also just been introduced to the medical profession. I saw an account of its use in a case of spasms in a child, and concluded to try it in a case of epilepsy, in connection with cocculus indicus, and the patient is apparently getting well, as she had not had a fit in a month, the last time I saw her. This was an old, confirmed case, in a young lady who had very frequent attacks of epilepsy, and in whose case I had tried the bromides of ammonium and potassium freely, for several months, without being able to arrest the attacks.

I used the saturated tincture of the dried bark, as it is less liable to produce the toxic effects of the ailanthus than the green bark. It should be commenced in doses of ten or fifteen drops, and gradually increased up to twenty-five or thirty drops, according to the age and constitution of the patient. In large doses it is a powerful emetic and cathartic. It has a direct effect upon the brain and spinal cord. It will doubtless prove a valuable antispasmodic, if properly given. It is a valuable remedy in asthma, and not only gives temporary relief to a paroxysm, but if the system is kept under the influence of the drug for some time, it will eradicate the disease. This it does by a peculiar influence it exerts over the pneumogastric nerves. The tincture should be prepared from the freshly dried bark.

Euphorbia Pilulifera—Snakeweed, Cat's Hair, Pill-bearing Spurge.

The euphorbia pilulifera is a native of Australia. The fresh herb is used. Its properties are antispasmodic; it is an antiasthmatic of great power. It is also reported to cure snakebite. It is said to arouse the heart quickly from the depressed condition resulting from the bite of serpents, and thus, like ammonia, and other stimulants, it aids the elimination of the virus. But it is praised more highly in asthma than in any other disease. It modifies the functions of the pneumogastric nerves. The dose is two grains of the aqueous extract, three times a day. The tincture may be used in doses from ten to thirty drops. The tincture may be made by adding eight ounces of the fresh herb to eight ounces of dilute alcohol.

Amyl Nitris-Nitrite of Amyl.

This drug was discovered by Balard, in 1844, and attention was called to it in 1859, by Guthrie; but it was not much used until Dr. Richardson introduced it in 1865 to the profession.

It is a volatile, oily, yellowish liquid, of a very penetrating, persistent, fruity odor, very highly inflammable, and is lighter than water, boiling at 182° F. It may be prepared by gently heating amylic alcohol (fusel oil) in a retort with nitric acid; removing the heat as soon as bubbles form; repressing the effervescence, if too strong, by cold water; rectifying by means of potassium, the distillate passing over under 212° F., and collecting apart the nitrite of amyl which distils under 170° F.

Medical Uses.—Amyl nitrite powerfully relaxes the cerebral arteries, as well as the capillaries of the face, causing a flushing of the face and perspiration from the head and face. This property makes it more prompt and valuable than ether and chloroform in cases of severe internal spasm with pain, such as angina pectoris, or in epilepsy and asthma. When inhaled by man in moderate doses, say three to five drops, it causes a sense of fullness and distention of the head, amounting frequently to

pain, accompanied with flushing of the face, a deep, labored breathing, and rapid, violent action of the heart. It is not an anæsthetic, as it has but little power over the nerves of sensation.

Angina pectoris being a violent cramp, or spasmodic contraction of the heart, is readily relieved by amyl nitrite, alternated with tincture of cactus grandiflorus. Dr. Brunton first used nitrite of amyl in angina pectoris, and with signal success, finding it more effective than any other remedy then known. Dr. Anstie relieved a severe case of angina pectoris with this remedy. Dr. Talfourd Jones used it with remarkable success in severe attacks of asthma. Dr. Richardson arrested the convulsions due to strychnia (in frogs), and hence advises a trial of amyl nitrite in strychnia poisoning and in tetanus. It is best administered by inhalation. Five to ten drops is the usual quantity, on a handkerchief, or the fumes may be inhaled from a bottle held close to the nose until the pulse quickens, when the inhalation should be discontinued. Dr. Jones recommends amyl nitrite in epilepsy.

The amyl nitrite exerts its influence over spasmodic affections by virtue of its direct action over the ganglionic centers of the sympathetic system. The vaso-motor nerves, which are a part of the great sympathetic system, supply the muscular coats of the arteries, and thereby regulate the expansion and contraction of the arteries, and so determine the amount of blood that shall pass through them in a given time. It is believed that all spasmodic diseases, as asthma, chorea, epilepsy, croup, angina pectoris, etc., are caused by deficient innervation, and this deficient innervation is due to a deficiency in the supply of blood to the nerve centers. This deficiency in the supply of blood is due to an irritation of the cerebral ganglia, which is transmitted by the vaso-motor nerves to the coats of the arteries, causing them to contract. Prof. H. C. Wood, in speaking of the power of amyl nitrite over angina pectoris, says: "There is now abundant evidence of its value in relieving,

almost instantly, agony which has resisted all other treatment, whether valvular disease or merely functional disorder."

It is a valuable remedy in eclampsia or fits in children, produced by various causes. It is a powerful cardiac stimulant. The excitement which it produces is followed by diminished but not extinguished action of the heart. A reduction of the respiratory power, and so much reduction in the circulation as to resemble trance, may be produced and maintained for hours by the continuous inhalation of amyl nitrite in small doses. Muscular action is first highly exalted, then gradually subdued by its action; hence its value to ward off epileptic and other spasmodic attacks, if given in time.

Dr. Zeigler says: "In asthma, nitrite of amyl is peculiarly useful." During the month of December last I gave it in three cases, two of which had been affected with the disease for several months, and the other one for some years. All of them, suffered just prior to admission into the hospital with nightly paroxysms of asthma which disturbed their sleep. Two of these patients left the hospital within four weeks after their admission, apparently cured. Six months later I saw both of them again and learned that the disease had not returned in The other case remains under treatment at the present time in the hospital. His lungs are very emphysematous, and he has frequent attacks of hemoptysis, attributable to asthmatic coughing. The patient says: 'I never had a good night's rest since the disease got so bad until I took the nitrite of amyl.' At first he regularly received, at bed-time, from ten to fifteen drops, but later he required it only once or twice a week, and now scarcely at all."

Dr. Henry mentions a case of a prominent medical man of his city who used to have annual attacks of asthma, that were finally cured, when everything else had failed, by a very short course of treatment with the nitrite of amyl. Thus it seems that the nitrite of amyl is destined to become the remedy for asthma.

Dioscorea Villosa-Wild Yam, Colic Root.

The dioscorea villosa has a slender twining vine or stem, herbaceous, rising from large, matted, knotty root-stalks. It climbs bushes, old fences, rock-piles, etc. The stem is smooth, villous, greenish-brown, dying every fall. The leaves are mostly alternate, sometimes nearly opposite, or in fours; more or less downy underneath, heart-shaped, conspicuously pointed, nine or eleven-ribbed. The flowers are pale greenish-yellow, very small, the sterile in drooping panicles, the fertile ones in simple, drooping racemes. The fruit is a membraneaceous three-angled or winged pod. The seeds, one or two in each cell, a minute embryo in hard albumen. It grows in thickets, from New England to Wisconsin, also in the Southern states; and is very plentiful in many parts of Georgia. It flowers in July. It should be tinctured while fresh, as it soon loses its virtues.

Medical Uses.—The Indians used this root in the cure of colic. It doubtless affects the spinal cord and the reflex nervous system, especially the umbilical plexus of nerves. In over-doses, in health, it causes hyperesthesia of the spine, brain, uterus and abdominal nerves. Its principal use is in so-called bilious colic, but it is of much service in some other kindred diseases. It has been known to cure facial neuralgia, spasmodic and flatulent colic, painful tenesmus, spasm of the bladder and uterus, also spasm of the gall ducts, and sciatica. It is a prompt remedy for pain in the stomach and for vomiting, etc. The dose of the saturated tincture is from half a drachm to one drachm; of the fluid extract, twenty to thirty drops.

Dioscorin.—Dioscorin is the antispasmodic and cholagogue principle of the dioscorea villosa, or wild yam. This article does not, as ordinarily made, fully contain all the therapeutic virtues of the dioscorea, but seems to exert an anæsthetic and antispasmodic effect upon the stomach and bowels, and at the same time it corrects any morbid condition of the biliary secre-

tion. In that peculiar condition of the system associated with hyperæsthesia, especially of the stomach and bowels, dioscorin is a prompt remedy. In bilious colic, combined with podophyllin and leptandrin, it gives very prompt relief. In the commencement of bilious colic I have obtained immediate relief in my own person from two grain doses, repeated every fifteen or twenty minutes. In neuralgia, dioscorin, combined with quinine and prussiate of iron, will be found a very prompt remedy. In dysmenorrhæa, combined with beberine and scutellaria, it will seldom fail to give relief. In dysentery, combined with gelsemin and the compound syrup of rhubarb and potassium, it gives prompt relief to the tenesmus and tormina, and corrects the biliary secretion at the same time.

Dioscorin seems to produce its antispasmodic and soothing effects upon the system without any material disturbance elsewhere. In large doses it acts upon the alimentary canal, and produces pain. The dose is from one to two grains, repeated as may be required. It should, like all concentrated remedies, be triturated with lactin, one grain to ten. It seems to relieve the pain of angina pectoris and other similar painful affections by its antispasmodic powers.

Melilotus Officinalis-Melilot, Sweet Clover.

The tincture of the root, bloom and plant is the preparation used—eight ounces to one pint of alcohol. This drug has been highly recommended in epilepsy, but has not proven as curative of that disease as it was claimed to be; but in cases of spasms in teething children, it has proven very efficient with me in several cases. Some physicians report success with it in neuralgia, especially when associated with debility. Soreness and lameness following the neuralgia indicate it. It also is a good remedy, alternated with dioscorea, in colic, painful diarrhœa, dysuria, dysmenorrhœa, and in neuralgic rheumatism of the back and hips.

It is indicated in many diseases caused by, or associated

with, capillary congestion, and the many motor and sensory disturbances caused by this congestion. It often may be appropriately used in cases of fullness, throbbing, and epistaxis, or headache; it is also indicated in cases where there are pleuritic pains and soreness, with a hacking cough. Melilot has also done good service in cases of cramps, fullness, pain and tenderness of the stomach and rectum, in both sexes, and of the ovaries in females, when these affections are caused by capillary congestion. It has also proved useful in cases of crampcolic, and neuralgia, associated with congestion of the capillaries of the nerve centers. The dose ranges from one to five drops for children, and ten to fifteen drops for adults, but it need not be given in excess.

Viburnum Opulus-High Cranberry, Cramp Bark.

This is an antispasmodic well suited to spasms and spasmodic action generally. It is an efficient remedy in cramps, asthma, hysteria and convulsions of females during gestation and parturition. It is also a good remedy to prevent the premature contractions of the uterus in what is usually termed false labor.

It is one of the ingredients of that most excellent female tonic and antispasmodic called "Philotoken" or "Female Friend," which is well known to prevent abortion or miscarriage. It is made as follows: Take of partridge berry one pound; helonias root, ground; high cranberry bark, ground; blue cohosh root, ground; each four ounces. Macerate for three days in spirits sufficient to cover the articles; then transfer to a displacement apparatus, and add spirits gradually until three pints of the tincture have passed off, which reserve; then add hot water as long as it tastes of the articles; evaporate this aqueous extract to five pints; when cool, add the spirituous tincture and two pounds of sugar, and melt by gentle heat. The dose is from two to four fluid ounces three times a day. To prevent abortion, I add one pound of the bark of the black

haw (viburnum prunifolium) to the above ingredients, which is a most excellent addition. This tincture is an admirable remedy in uterine diseases. The dose of the fluid extract of cramp bark is from half a drachm to one drachm.

Viburnin.—Viburnin is the active principle of the viburnum opulus, or high cranberry. Viburnin has a peculiar tonic effect upon the uterus. It also seems to have a tonic effect upon the nervous system generally. This last property would point it out as an important remedy in cases where there is general depression or debility of the nerves. In neuralgia, viburnin may be given, combined with quinine and cyanuret of iron, with good effect. In cases of cramp and irregular spasmodic contraction of the muscles, this is a prompt remedy.

I have used it a good deal with pregnant females who were subject to frequent miscarriages, from an irritable state of the uterus, and have found it to act with great promptitude. In hysteria, viburnin may be combined with cypripedin and scutellarin, and given freely, and it will allay all the frightful symptoms of this protean disease in a few hours. It is represented by some writers as possessing antiperiodic properties; although I have never tried it in cases requiring antiperiodics, yet its influence upon the nervous system renders it possible that it possesses such a property. It is a good remedy in afterpains, and may be given in large doses, say three to five grains every hour or two until it controls the action of the uterus. The usual dose is from one to five grains every four hours.

Viburnum Prunifolium-Black Haw.

The tincture of the root-bark is the preparation used. This is a most valuable female remedy in all cases of excessive motor innervation to the ovaries and uterus. In cramps, spasms, colic, etc., it is indicated. And in that very irritable state of the uterus, that gives rise to abortion, it is a precious boon. I have used this article, and the V. opulus, in many cases, that had acquired a peculiar tendency to abort at a certain period of

gestation; and have almost always overcome this habit, with the tincture of these articles, at the time, followed by the compound tincture of partridge berry in the interval between the attacks. It has often been used where cotton root, and other drugs, had been taken to produce abortion, and almost uniformly succeeds in preventing abortion.

In dysmenorrhoea, I have found the viburnum prunifolium as good, if not better, than the V. opulus. It may be alternated with pulsatilla or gelsemium, or belladonna if there is congestion of the uterus and ovaries. I give viburnum during the attack, and then give senecio aureus in the interval between the menstrual flow. In this way I have cured some of the very worst cases of painful menstruation. It prevents premature pains in the uterus, which trouble many nervous females. The dose is from one to two ounces.

VI. ANTISQUAMICS.

These remedies have a direct tendency to the skin. They are consequently very positive in their action against that class of diseases known under the generic name of squame, as eczema, herpes, porrigo, favus, sycosis, pityriasis, etc. These skin diseases are caused by impurity in the blood, which must be counteracted or eliminated in order to get rid of the diseases. The influence of these antisquamic remedies upon the squamous diseases, lepra and psoriasis, is most characteristic. Dr. Hunt considers arsenic to be a specific for all skin diseases that are not syphilitic in their origin. It is very useful, not only in lepra and psoriasis, but in eczema, impetigo and lupus. In lupus I have used it very successfully, both externally and internally.

In some scaly diseases of the skin, tar is a remedy of considerable power, and it owes its virtue probably to the creosote or carbolic acid it contains, as these remedies seem to act in a similar manner. They are applied externally. Pitch is also a remedy for lepra. For scabies, lepra, and some other skin

diseases, creosote, benzole, carbolic acid and naphthaline, externally applied, are very valuable remedies. They may be associated with suitable internal treatment. Sulphur has been used in eczema, impetigo and lepra; and also with benefit, in itch.

In some chronic skin diseases, sulphurous acid or the sulphites and hyposulphites of sodium and potassium, or lime, are preferable to sulphur. But in squamous diseases, not connected with syphilis, sulphur has a direct influence. Sulphurous acid is a good remedy in psoriasis palmaris. It is also a good remedy in scabies, but even here sulphurous acid and the sulphites are more cleanly for external use, and are generally as effective. Many other remedies have been used in skin diseases, but the ones mentioned are the most direct in their action in all cases. Arsenic has been the remedy most universally relied on hitherto; and if properly given, it will generally prove effective, provided the affection of the skin is not connected with syphilis. If the skin disease is connected with the strumous diathesis, iodine or the iodides should be given in alternation. In all cases where arsenic produces irritation of the conjunctive or cedema of the face it should be discontinued for a while. We will now notice each individual article of this class of remedies separately. There are some vegetable remedies we have not mentioned, as the juglans or butternut, which we will notice later on.

Arsenicum—Arsenic.

Arsenic has long been relied on in certain skin diseases, and is doubtless often very positive in its action. The best form for use is the arseniate of potassium—Fowler's solution. It should always be given in small doses, say from one to six drops, largely diluted with water, and taken just after meals, to prevent it from irritating the stomach. Its toxic effects are swelling of the face, dryness of the mouth, congestion of the eyes, restlessness at night, etc. When any of these symptoms occur the arsenic should be discontinued at once.

Sulphur.

Sulphur is a specific in some forms of skin diseases, especially scabies or itch. It is usually used as an ointment, made as follows: Sulphur sublimate, two ounces; sub-carbonate of potassium, one ounce; lard, eight ounces: Mix. Apply to the parts affected and wash off with strong soap every second day, then re-apply, etc. This is a very positive remedy for scabies. For many kindred affections of the skin the sulphurous acid or the sulphites of soda and potassium will answer the same purpose and are more cleanly. For humid tetter of the head, carbolic acid, alternated with the sulphites, will act well. Carbolic acid may be combined with glycerine in various proportions, say half a drachm or one drachm to the ounce.

Ampelopsis Quinquefolia—False Grape, American Ivy, Virginia Creeper.

This is a creeping vine, with rooting, climbing stems with leaves pointed out; leaflets oblong, having a long, projecting, tapering point, with five leaflets on a petal or footstalk; the edge uneven or dented, smooth, turning crimson in autumn; the flowers inconspicuous, greenish or white, growing in clusters, regularly divided by pairs, from top to bottom; calyx entire; petals five, distinct, spreading; ovary two-celled, cells two-ovuled; style very short; berries dark-blue, acid, smaller than the common grape, and two-celled, with one or two seeds to the cell. It is found in most parts of the United States, running along fences, climbing trees, and, supporting itself firmly by means of its radical tendrils, ascending to the height of fifty feet or more. It blooms in July, ripening its berries in October. The bark, leaves and twigs contain its medical virtues.

Medical Uses.—Ampelopsis is one of our best antipsorics, and has also a direct affinity for the mucous and glandular apparatus. It resembles alnus rubra in its action upon the skin, glands and mucous tissues; but in addition to its action upon

the above tissues, it has a specific influence over serous tissues. I have cured chronic cases of dropsy of long standing with it. It is also a very valuable remedy for enlarged lymphatic glands, exerting a direct effect upon them. It acts very favorably in cases of scrofula, where either the skin or the lymphatic glands are involved. In this disease it may be combined with scrophularia and iodine. It is also a good remedy in eczema, and many other similar skin diseases.

I use the fluid extract, in doses of one-fourth to half a drachm; and the saturated tincture, in doses of from half a drachm to one drachm three or four times a day.

Alnus Rubra—Tag Alder.

Alnus rubra is a common shrub, indigenous to both Europe and America, growing in clumps, and forming thickets on the borders of rivers and ponds, and in swamps. The stems are numerous, and grow from six to fifteen feet high. The leaves are obovate, acuminate, smooth, green and from two to four inches long. It blooms most of the year in the Southern states, having a tag-like bloom of a reddish color. The bark is the part used, which is inodorous and of a slightly bitter taste, with some astringency. Boiling water or alcohol extracts its medical virtues.

Medical Uses.—The alnus rubra is a very positive antipsoric. I have used it with good effect in some skin diseases. It is applicable in such as impetigo, prurigo, herpes and other chronic eruptions. I have also derived good effects from its use in scrofulous enlargement of the lymphatic glands. Besides its alterative properties, it possesses a tonic effect which renders it an appropriate remedy in some diseases peculiar to childhood, such as marasmus, scurfy tetter of the scalp, etc. It is also somewhat astringent, and is a good remedy in hæmaturia and other passive hæmorrhages. It is favorably spoken of as a remedy in scorbutus and purpura hæmorrhagica. It is recommended by one writer as a very positive remedy for indigestion.

I have used it as a tonic, but always combined with other tonics, so that I cannot pronounce positively in regard to its tonic properties.

I use the fluid extract or the saturated tincture. The dose of the fluid extract is from twenty to forty drops. The dose of the tincture is thirty to sixty drops, repeated three or four times a day.

Arctium Lappa Major-Burdock, Clot Bur.

In those skin diseases attended with aridity of the surface, burdock is a valuable remedy, but, like sarsaparilla, it must be continued for a long time. In tinea it may be both given internally, and applied externally in the form of a poultice or an ointment. Lappa acts very positively in dry skin affections, and doubtless it will be a good remedy, associated with others, in the various forms of scaly skin disease. This class of skin diseases is exceedingly difficult to cure, and burdock is one of the remedies that, if persevered in, will be found to afford prompt relief. It may be alternated with the arseniate of potash, or such other remedies as may be specifically indicated.

Juglans Cinerea — White Walnut, Butternut. Juglans Nigra—Black Walnut.

The juglans cinerea, or white walnut, has a special tendency to the skin, and has been successfully used in the treatment of some squamic affections of the skin. It should be given to a degree short of purgation to be effective.

Juglans nigra, the black walnut, has been used with good effect in tetter and ringworm. The strong juice of the rind is usually applied, but a saturated tincture of this and the J. cinerea are the best forms for use; dose, twenty drops. This tincture may be applied externally or taken internally.

Rhamnus Catharticus—Buckthorn.

This is a large shrub, with dark-brown bark and yellowish wood; the branches are alternate or nearly opposite, spreading,

and armed with spines at the extremities; the leaves are simple, entire, smooth, ovate, serrate, and of a bright-green color; the flowers are small, of a greenish color, and are borne at the extremity of the branches of the former year; they are generally of different sexes on different plants, but sometimes they are polygamous; the fertile flowers have the rudiments of stamens, narrow petals, and four almost united styles; the barren ones have an abortive ovary and broader petals; the anthers are small, rounded, and borne on short, subulate filaments, which are inserted into the mouth of the calyx; the berries are globular, and about as large as a pea, black when ripe, containing a green pulp, with four cells and as many seeds, which are smooth, elliptical, convex on one side and flattened on the other. It is indigenous to Europe and America. It flowers in May and June, and ripens its fruit in September.

Medical Uses.—The berries are an active and rather drastic cathartic, not much used now for that purpose. The saturated tincture of the bark is a valuable alterative in scrofula and other skin diseases. It may be given in doses of twenty to thirty drops, three or four times a day, or the fluid extract may be given in doses of ten to fifteen drops three times a day.

It is a very positive remedy in skin diseases, as lupus, cancer, syphiloid affections, etc. A writer in the Cincinnati *Eclectic Journal*, whose name I have forgotten, gives it as a positive remedy for scrofula, and says that it favorably influences cancer. It is worthy of a thorough investigation.

Dulcamara—Bittersweet, Woody Nightshade.

The solanum dulcamara (natural order Solanaceæ) is a European vine, now naturalized in the United States, which possesses very active narcotic and diaphoretic properties. The active principle is chiefly solania (C_{43} H_{70} NO_{16}), which has been found in S. nigrum, or black nightshade.

In large doses bittersweet is an acro-narcotic poison; in moderate doses it increases the action of the skin and mucous

membranes, with some diminution of the sensibility. It is alterative to the skin, and hence a remedy in skin diseases, syphilis, scrofula, inflammatory deposits, as cancer, and some irritable ulcers. It increases waste and excretion, hence it removes the dead tissue, together with such impurities as are associated with, or are the results of the above diseases. It is catalytic in its action, for it seems to unite with certain foreign elements found in the blood in disease, and conveys them out of the blood; hence its utility in many diseases characterized by a poisoned state of the blood and the glandular system.

I have used it frequently in certain skin affections, but generally associated or alternated with iodine or other alteratives; there is no doubt, however, that the bittersweet is a good alterative. The dose of the fluid extract is from three to five drops; the dose of the saturated tincture is from five to ten drops, repeated some three or four times in the twenty-four hours.

Clematis Virginiana-Virgin's Bower.

Clematis has a special affinity for the skin, the lymphatic glandular system, and the genito-urinary organs. It is indicated by a moist eruption with stinging and itching, worse when warm in bed, painful micturition, etc. Inflammation of the testes also indicates this drug.

Therapeutic Action.—Clematis is a remedy in eczema of a moist character. It is also indicated in inflammation of the eyes of children, whose skin is liable to eruptions. Dose, five to ten drops, three times a day.

VII. ANTIPHLOGISTICS—ANTIPYRETICS.

Inflammation.

Inflammation may be defined to be the last step in the advance of excitement, being that condition in a part or parts in which irritation, if increased beyond a certain point, necessarily terminates. The causes are the same as irritation, only more intensified and longer continued. Some causes of irrita-

tion stop short, others continue until they result in inflammation. Any substance which will corrode, wound, or in any way produce a solution of continuity, may give rise to inflammation. In like manner the presence of foreign bodies within the organs occasions inflammation. This is a necessary result in order to the discharge of such offending material by ulceration or suppuration.

In the same way certain morbid materials, lodged within the organs, cause irritation to such an extent that they likewise produce inflammation. There are certain conditions of the system which strongly predispose to inflammation; and in such conditions, causes that, under other circumstances, would not produce that degree of irritation necessary to cause inflammation, when united with this favorable predisposition, result in inflammation. It is believed that excess of albumen, red corpuscles and fibrin in the blood, are very favorable to the production of inflammation.

The general characteristics of inflammation are increased redness, heat, pain and swelling. All of these phenomena, existing in any one case, are very positive evidence of the existence of inflammation in the part. But one of these symptoms may be absent; for instance, the pain may be absent, and the redness and heat may abate, or even disappear, before the inflammation ceases.

Inflammations and inflammatory fevers constitute the most important class of diseases in the list of human maladies; hence the notice in this place of their phenomena, progress, nature, cause, and modifications in different tissues, and final results, cannot be deemed unimportant.

Progress.—The redness is generally proportionate to the inflammation. A bright-red color usually attends the ordinary active form, and a darker color is seen in the specific forms of inflammation, and those tending to gangrene or mortification. The redness disappears under pressure with the finger, but returns when the finger is removed, and the readiness with

which it returns measures the intensity of the inflammation. This redness of the surface is owing to the enlarged state of the capillary vessels, and to the crowding of the red corpuscles, which are in much larger relative proportion in the vessels of the inflamed part, than in those of the sound parts.

Heat.—There is increased heat in inflammation, and this is more observable to the patient than to the physician. The increase of temperature is owing to the increased amount of blood in the part, and to an increase of that peculiar vital action upon which the evolution of heat depends.

Pain.—Pain may be slight or very severe. It may be in one instance sharp or lancinating, and in another, dull, heavy, or tensive; sometimes it is throbbing, and again it is pungent, pricking, burning, or merely itching; and sometimes it amounts merely to soreness. The character of the pain is much modified by the part affected.

Swelling.—The swelling is sometimes slight, sometimes very great. It is due first to the influx of blood in the part, and then is much increased by the effusion into the structure of the part, and by a new organization or growth which takes place in the progress of the disease. Secretion is arrested at first, especially in mucous membranes, and then increased, as in bronchitis, pneumonia, dysentery, etc. It is also increased in gonorrhea, gleet, etc.

Results.—Ordinary inflammation terminates in either resolution by adhesion, or suppuration, or by mortification, or gangrene. Gangrene occurs when a portion of the inflamed structure loses its vitality, and passes from under the influence of physiological to that of chemical laws. This loss of vitality in a part constitutes gangrene, or sphacelus. The cause of this state is the disproportion between the excitement of a part and its powers of vitality, the vitality being exhausted by the excess of excitement. The strength of vital resistance to this condition of death of a part is different in different instances, depending upon the vigor of the constitution. The blood is often in a

state favorable to this condition, because it is unable to supply the materials requisite to maintain vigorous health. It may also occur from obstruction to the circulation in the capillaries of the part.

We have seen that a local injury, in which the nervous system is involved, may, by reflected nervous irritation through nervous centers, affect the circulation so as to cause fever. The existence in the blood of certain morbid poisons, as those of gout or rheumatism, may produce the same result in a more immediate way. In this form of fever, not only is the action of the heart excited, but the condition of the blood is altered also. There is an increase in the amount of those elements on which nutrition and life depend. In cases of local injury, this altered state of the blood commences in the capillary vessels of the part injured, and it soon spreads to the blood generally. The blood, as we before stated, has an excess of fibrin, and the red corpuscles are in excess.

The office of antiphlogistic remedies is to counteract this condition of the blood in inflammation. They have the power, when they enter the blood, of diminishing the amount of fibrin in it. This removes from the heart the cause of irritation, and allows the pulse to subside. These remedies also retard the effusion of plastic lymph from the capillary vessels, which effusion is the greatest source of danger. This class of remedies is only admissible in a sthenic form of inflammation and high fever, but not in low forms of fever and inflammation. We have a low form of fever, the results of the poison of typhus, typhoid and scarlet fever. The want of strength in the pulse, and the great prostration, show us that we have not here the conditions of the blood above described. On the contrary, in these low forms of fever, the fibrin is diminished, and consequently the employment of antiphlogistic medicines is contraindicated. But these remedies are very appropriate in all acute inflammations that commence locally, whether from a wound or some morbid irritation, or change in a part or organ, as in

pleuritis, cerebritis, hepatitis, orchitis, peritonitis. and other like inflammations. The acute forms of gout and rheumatism also require this class of remedies for their relief. In gout and rheumatism, however, catalytic medicines should first be used to rid the system of the poison causing the disease.

Acute inflammations, with which we often have to deal, are of the utmost moment. The inflammatory process is in the blood, and exerts a powerful influence over the nervous system, and may thus cause death. We can counteract this process in two ways: we may produce an action on the nervous system, or we may act directly on the blood. Becquerell and Rodier show that the fibrin of the blood is increased on an average to five and eight-tenths parts to the thousand in inflammation. This is about double the amount of fibrin in the blood in health. Alkalies and alkaline salts are efficacious in some special varieties of inflammation, by counteracting the morbid agency through which it is kept up.

Salines diminish the fibrin of the blood and thereby tend to lessen inflammation. In typhoid and tyhpus fevers and some other low inflammations the blood is already very much deteriorated. With aconite we can then produce a direct effect upon the circulation without further deterioration of the blood. We have also the nitrate and chlorate of potassium, both mild antiphlogistics, the chlorate of potassium tending to correct the septic tendency in the system, which exists in most low forms of fevers and inflammations. The nitrate and acetate of potassium have long been used in inflammatory rheumatism with good effect. The salts are not as active as the alkalies where there is acid in the blood, as they pass out by excretion as they entered; but alkalies pass out into the secretions as salts, having first combined with the acid in the system, leaving behind an excess of alkali in the blood, by which their action continues for a considerable time.

It is very seldom that we need alkalies in typhoid fever, as there seems to be an excess of them already in the blood; but, on the contrary, I have often resorted to acids with good effect; and these act, perhaps, more as catalytics than otherwise. Acids are indicated in fevers just as they are in other diseases, by the dark coating and the redness of the tongue and mucous coat.

Antimonium—Antimony.

The tartar emetic (tartrate of antimony) has been relied on as an antiphlogistic by the profession for many years; mercurials have also been relied on in connection with antimonials, but they have not only failed to control inflammation and fever, but have proven very detrimental to the entire system of organic life. Antimonials are a fruitful source of gastric and enteric inflammations, and often produce more grave forms of inflammation than those they are used to cure. It is now ascertained that antimonials do not possess the antiphlogistic power that has been attributed to them, and they are fast falling into merited neglect, and their place is now being supplied by aconite and veratrum. Both of these remedies answer the purpose for which they are prescribed.

Hydrargyrum—Mercury.

Mercurials are chiefly given for two purposes: first, they are given as antiphlogistics; and second, as cholagogues. Some even give them as alteratives; and most physicians give them because others have given them. J. Hughs Bennett has proven that their only antiphlogistic property is to deteriorate the blood, and he doubts their cholagogue properties: their warmest advocates admit that they have no alterative properties: hence, all the conservatives are discontinuing their use, and they will soon be discarded.

Veratrum Viride-American Hellebore.

We have already described veratrum under the head of Arterial Sedatives, but it is as valuable as an antiphlogistic as

¹See Prof. Scudder's work on "Diagnosis."

any remedy we have. To obtain its antiphlogistic properties it must be given in small doses; it then acts as a stimulant to the ganglionic system of nerves, thereby removing obstruction to the capillary circulation, by giving tone to the heart and to the vascular system. We have seen that in inflammations, one element in those diseases known as inflammatory, is atony of the venous capillaries, causing distention, and thereby obstructing the return of the blood to the heart. Now, the specific action of veratrum, and some other arterial sedatives, is to remove this venous atony, and thereby to overcome the obstruction to the circulation. This lessens the necessity for the increased frequency of the heart's action.

In large doses, it controls the sthenic action of the heart in active forms of inflammation and fevers. It lessens the temperature and increases waste, excretion and nutrition; hence some writers call it an alterative. There are many remedies whose action when administered in small doses is quite different from that produced when large doses are given. Veratrum is one of this class. It is one of our best antiphlogistics, in doses of one-fourth to half a drop, every three hours. It is well worthy of trial.

Aconitum Napellus-Aconite.

This article has also been noticed in the chapter upon Arterial Sedatives, but it has also an action distinct from sedation. This article is undoubtedly a stimulant to the sympathetic system of nerves, increasing the power of the heart and blood-vessels to move the blood in cases of atony, thereby overcoming one of the elements in inflammation; that is, increased amount of blood in a part, caused by atony of the vessels.

We find in many cases of inflammation that there is a want of power in the heart to move the blood readily, from feeble innervation. This feeble innervation, affecting the capillary circulation, produces a morbid frequency of the heart's action. Here, as a cardiac stimulant, small doses of aconite, say one-fourth to half a drop every hour or two, lessens that morbid frequency, and frees the capillaries from their obstruction by atony and distention. This atony and distention are present in many forms of inflammation. Thus aconite, in small doses, antagonizes inflammation, and frequently arrests it suddenly. There is an anæsthetic power in aconite that makes it valuable in painful forms of inflammation, as in dysentery, and many other diseases. The dose should not exceed half a drop. Any one who has tried aconite in this way will never again use antimony.

Sodii Nitras-Nitrate of Sodium.

This is also called cubic nitre, and is soluble in three times its own weight of pure water, giving a colorless solution. In doses of five to ten grains three or four times in the day and night, the nitrate of sodium increases the secretory function of the kidneys and skin, and hence may be used instead of nitrate of potassium in cases of dropsy. It is regarded as a good remedy in dysentery by some Germans, as Rademacher and his school. A swollen and puffed tongue, covered with a white or yellow fur, with dry mouth, indicate this drug. It should be given in solution, well diluted with water, on account of its acridity.

Potassii Acetas—Acetate of Potassium. Potassii Citras —Citrate of Potassium.

Acetate of potassium has long been used as an antiphlogistic, and we can readily see how it acts. If one equivalent of the acetate of potassium with eight of oxygen make one equivalent of the bicarbonate (two of free carbonic acid and three of water), this carbonate, being very easily decomposed by any acid, is equivalent to a free alkali. Thus small doses of these salts may fulfill a double indication. They may supply the respiratory process, and act on the secretions as alkalies.

In fevers and inflammations these neutral salts lessen heat

by depriving the blood of excessive oxygen. They act as diaphoretics, in large quantities, thereby lessening the confined heat in the blood, for the heat can never accumulate as rapidly while transpiration is going on through the skin. They also frequently eliminate through the kidneys, and thus, in some fevers or inflammations depending on, or connected with some morbid material in the blood, the acetates and citrates do much good by aiding in elimination; thus they act in this case as catalytics proper. The dose of the acetate of potassium may be from five to ten grains, every hour or two. This may be increased to twenty or thirty grains if desirable.

Antipyrina—Antipyrin.

Antipyrin is the hydrochloride of dimethyloxychinicine, (C₂₀H₁₈N₄O₂), and is an alkaloidal product of the destructive distillation of coal-tar. It is a grayish or reddish-white crystal-line powder, of a slightly bitter taste, freely soluble in cold water, and to a less degree in alcohol, chloroform and ether. Ferric chloride colors it an intense red, and nitric acid changes it to a beautiful green color. The initial dose is twenty to thirty grains, and one and a half grains to three grains, every hour for two or three hours, in sweetened peppermint water. If it causes nausea, the dose should be lessened.

Physiological Effects. — In large doses, antipyrin reduces the temperature from three to five degrees in fevers, for several hours, and slightly increases the blood pressure. It also produces profuse diaphoresis, but this effect may be prevented by a small dose of belladonna or agaracine, given previously. In over-doses, it often produces emesis, and sometimes an eruption on the skin. Slight collapse has followed in some rare cases, but, as yet, no serious results are recorded. Its antipyretic effects continue from five to twenty hours, and the rise of temperature is not preceded by a chill as it is in the case of kairine. It dilates the pupils, is eliminated by the kidneys, and appears in the urine three hours after it has been taken.

Antipyrin is a most powerful antiseptic and disinfectant, and is thought by some writers to have hæmostatic powers.

When antipyrin has been taken in large doses in health, it is usually followed by slight nausea, singing in ears, and a reduction of temperature of about one-tenth of a degree. In fever, it has been followed by a reduction in temperature of from eight to twelve degrees, but from three to five degrees is usual. When given with kairine, the reduction is greater than when either of these drugs is given alone, and the lowered temperature continues longer, than when one only is used.

Therapeutic Action.—Antipyrin is the least unpleasant and the most powerful of any of the antipyretics. It has been used very extensively in the various types of fevers, and generally with strikingly beneficial results. It is especially useful in typhoid fever, measles, phthisis pulmonalis, erysipelas, and arthritic fever. It is less useful in pneumonia, pleurisy, and bronchitis. It cannot be freely used in typhus, as it sometimes produces collapse.

Kairina-Kairine.

Kairine is the hydrochlorate of oxytetrahydromethylchinoline, $(C_{19} H_{13} NO HCl + H_2O)$. It is an artificial alkaloid prepared from chinoline, and belongs to the phenol group of carbon compounds. It is also a powerful antipyretic. Dose, eight grains, every hour. It colors the urine green. It has not proven toxic as yet, but in typhus, it has produced cyanosis and collapse. It causes profuse diaphoresis and vomiting, and reduces the bodily temperature.

Acetanilid-Antifebrin.

This is a white odorless powder, almost insoluble in water, but freely soluble in alcohol or diluted alcohol. It is given in doses of from five to ten grains, or as much as thirty grains may be given in the twenty-four hours. Its antipyretic properties are about four times as great as those of antipyrin. It takes effect upon the temperature in an hour after it is given,

reaches its maximum effect in about four hours, and passes off in from three to ten hours, according to the dose given. It lowers the pulse proportionately with the fall of temperature. It does not produce nausea, even in large doses, nor has it been followed by any other dangerous effects. It is applicable in many diseases, which are characterized by high temperature, such as acute rheumatism, erysipelas, typhoid fever, septicæmia, and in many cases of phthisis pulmonalis.

It is the remedy for pyrexia, where quinine cannot be procured or where the patient cannot tolerate quinia, or cinchonidia. But quinine is at the head of the list of remedies where there is periodicity. Dr. Pavay, chief of the Presburg hospital, gives to antipyrin the palm as a practical antipyretic; he thinks it equally as efficient as quinine and salicin, but that it is not liable to produce the very unpleasant secondary symptoms which frequently follow the use of these articles. The dose is about ten to twenty grains ter in die, or five grains every four hours may suffice.

CHAPTER X.

Astringents.

A LTHOUGH the number of direct astringents is not large, yet they are so distinct in their operation from other astringents that they require a separate consideration. The articles comprising this class do not necessarily act in the blood. They do not pass from the blood to the nerves, nor do they generally act by passing out of the body through the glandular system. They pass to muscular fiber, upon which they directly act by causing it to contract. They act on either striped or voluntary muscular fiber. This action takes place in the body or out of it, externally or internally.

Nearly all the astringents have the power to coagulate or precipitate albumen. By this power they constrict many dead animal structures. They affect the fibrous tissues in a similar way. They have the direct power to contract muscular fiber, and by this process their entire operations can be explained. After they enter the blood in a state of solution, they pass at once through the walls of the capillaries to the muscular tissue, which they cause to contract. Now, it is a well-known fact that the unstriped muscular fiber exists in the middle coat of arteries, in the walls of capillary vessels, in the lining of the ducts of glands, and in the substance of the heart and the coats of the stomach and intestines.

In very large doses astringents become poisonous; but in small doses they constrict, stimulate and improve the condition of those tubes that contain unstriped fiber in their coats. They diminish the caliber of capillary vessels generally, and thereby remove a relaxed condition of these vessels, thus lessening hæmorrhages. By the same influence over the lining of glands,

they diminish the secretions of the glands; by the same power they give tone to the stomach and intestines, and diminish their secretions when excessive.

Now for the proof that they pass into the blood, and that they do have the power to contract muscular fiber, living or dead, and that they do diminish secretion and hæmorrhage. The proof of the above propositions is quite easy. It has already been proved that astringents pass into the blood. Some mineral astringents have already been noticed under the head of Hæmatics. These are all soluble in water. They are all readily absorbed in the stomach and intestines, and thence pass into the blood, and many of them pass into the secretions. The vegetable astringents are soluble in the stomach, and readily pass into the blood.

Tannic acid constitutes the astringent principle of almost all vegetable astringents. It changes into gallic acid in the blood, and thus passes into the kidneys and out with the urine. Astringents possess a chemical and a dynamic power. All the mineral astringents have the power of producing a precipitate in albuminous solutions. Certain of the vegetable astringents, as tannic acid, turpentine, creosote and carbolic acid, have the same power. Tannic acid has the power likewise of precipitating gelatine.

The dynamic power, which is common to all these substances, is the peculiar power of causing the contraction of muscular fiber. This depends upon the chemical power just mentioned, for astringents appear to constringe fibrous as well as albuminous tissues by chemical action. They coagulate fluids and discharges which contain albumen. When a fresh fiber of a dead muscle is immersed in a solution of any astringent, it may be seen under the microscope to contract; and if the solution of an astringent be applied to the web of a frog's foot, in an extended position, the capillary vessels will be seen to contract in size at once. In this way an astringent will, by its action on the unstriped muscular fiber contained in its coat,

cause the vessel to contract and diminish in caliber; hence its action to check discharges in excess.

The prompt action of astringents renders it necessary that they should always be given in proper doses, sufficiently diluted, for they have first an action upon the mucous membranes, with which they first come in contact in the stomach and bowels. They must pass into the blood by absorption before they can act on distant parts. They check secretion and are useful where this is excessive.

The vegetable astringents are given in diarrhea. Nitrate of silver is used by some in pyrosis; sulphuric acid is prescribed in profuse perspiration; and uva ursi and pipsissewa are given in mucous discharges from the bladder and urethra, etc. Some astringents are employed in hæmorrhages with good effect. Thus, oil of erigeron is given in uterine hæmorrhage; turpentine, in hæmorrhage from the kidneys; creosote, uva ursi and persulphate of iron, in hæmorrhage from the stomach and bowels; ergot and oil of erigeron, in hæmorrhage from the lungs, uterus or nose; lycopus (sweet bugle), in hæmorrhage of the lungs. Very mild astringents, such as rhubarb, are prescribed in the latter stages of dysentery, and the active vegetable astringents are prescribed in diarrhea.

In certain atonic conditions of the system, astringents act as tonics by their effect upon the relaxed muscular fiber. When muscular tissue is too lax they contract it, and thereby become tonics. It is thus seen that in all these instances astringents have the power to contract muscular fiber and that they thereby diminish the caliber of certain tubes and cavities. And it follows that they can only do so by passing through the absorbents to the blood, and thence to the tissues to be influenced. This is a simple explanation of the phenomena of astringent medicines.

Now, as this effect appears to be partly chemical, we may conclude at once that when thus diluted with the mass of the blood, the action of astringents is much impaired. They act best when they can be applied directly to the part to be influenced; next best when they are excreted by a gland which is to be influenced, for then the dose is again concentrated; they show least manifestation when they are diluted, as they are then diffused through the blood. Hence we can see why many of our astringents, either vegetable or mineral, act so promptly when applied directly to the parts affected. Thus the persalt of iron will check hæmorrhage from small vessels immediately. The enlarged capillaries of the eye are contracted by lead or zinc as soon as these remedies are applied.

I. VEGETABLE ASTRINGENTS.

Acidum Tannicum—Tannic Acid, Tannin. Acidum Gallicum—Gallic Acid.

As we have already remarked, the chief astringent property in vegetables is due to tannic acid. The best tannin is made from nut galls, which are the production of a tree or shrub of Asia Minor. The oaks of this country yield these excrescences, but they are light and spongy, and of little value. Nut galls contain much tannin and gallic acid. They were formerly used as astringents, but have not been so much used since the introduction of tannin and other vegetable extracts, as catechu, kino, etc.

Tannin possesses astringent properties to a very high degree; but, owing to its unpleasant taste, it is not as much used as some other vegetable extracts. For external use it is much relied on; and in extreme cases of diarrhea I have often resorted to it, made into pills with gum acacia. It is very prompt to arrest diarrhea caused by simple relaxation of the mucous membrane, giving rise to hyper-secretion. Before the introduction of the oil of erigeron I used tannin occasionally in uterine hæmorrhage, with marked success. It may be used locally, in many forms of inflammation, attended by a relaxed condition of the parts. The dose of tannin is from two to five grains, repeated every one or two hours, as may be required.

Coto Bark.

Coto bark is obtained from a species of nectandra. The tincture or fluid extract is used; dose, ten to thirty drops every three hours. This article is a very powerful astringent, and is indicated in profuse sweating, and also in atonic diarrhea. It is also a valuable remedy in the profuse perspiration of phthisis; it is reported to be more efficient in the colliquative sweats of phthisis pulmonalis than any other remedy. In this condition, ten drops may be taken every one or two hours, until it begins to check the perspiration; then the doses should be lessened, or the intervals prolonged, so as very gradually to check the colliquative sweats. I have used it only in diarrhea.

Acacia Catechu-Catechu.

Catechu is the product of the wood of a tree found in India. It consists of about one-half tannin, one-third of a peculiar extractive, which is called catechin; to both of which it owes its properties. Catechu is a very active astringent, very much resembling the extract of rhatany in its effects, and may be employed in all cases where there exists immoderate discharges, without inflammation or congestion. It is a valuable article where there is diarrhea from debility or relaxation of the tissues. It is a good application to phagedenic ulcers. It is a very good remedy in passive hæmorrhages; and as it is not offensive to the taste, it is very applicable to the latter stages of cholera morbus and summer complaint of children. It makes a good application to prolapsed uvula. I use it a great deal in cases of diarrhoea, where there is no fever, and where there is a relaxed condition of the mucous membranes. As an injection in leucorrhœa, it is mild and very effective. For this purpose the extract may be dissolved in hot water, to a moderate strength, say an ounce to the pint of water.

For diarrhoea and other internal uses, I use the saturated tincture in alcohol (60°) . The dose is from thirty to sixty drops, repeated every two or three hours. For children, the

dose will be from ten to thirty drops, according to age. The dose of the extract is from three to five grains for adults.

Mangifera Indica-Mango.

Mango is the bark of mangifera indica. It is one of our most powerful astringents. I have used it very successfully in cases of acute and chronic diarrhea. I give it in the form of the tincture in doses of from ten to thirty drops every two or three hours. It is a very positive remedy for relaxation of the uterus, and prolapse of that organ, or for leucorrhea from a relaxed state of the vagina. It is also recommended for profuse nasal discharges in catarrh, and bronchorrhea. The fluid extract is used in doses of ten to sixty drops, three or four times a day, well diluted.

Garcinia Mangostana-Mangosteen.

The mango-fruit, or mangosteen, is the fruit of the garcinia mangostana, which belongs to the natural order Gutti-feræ. It is found in the East Indies. This is also a powerful astringent, and is used in diarrhæa, nasal catarrh and leucorrhæa.

Kino-Kino.

Kino is the inspissated juice of the pterocarpus marsupium, a tree of Malabar. When good it contains about seventy-five per cent. of tannin, the remainder being a red gum and catechin. It is often very inferior, either from adulteration or from being improperly prepared with heat, etc. When pure, it operates much like tannin and catechu upon the system. It is an active astringent, and answers all the purposes of tannin, or other astringents of its class. Both catechu and kino are more apt to bind the bowels than tannin, therefore while they are equally as applicable as tannin in diarrhœa, they are not so valuable in hæmorrhages, where we do not wish to constipate the bowels. I have given kino a great deal in diarrhœa, and find it to act promptly when given under proper circum-

stances. It should not be given when there is fever or inflammation. This and the other articles that have been described, are often prescribed in gonorrhea, but I think they are productive of much mischief. They check the mucous discharge, and leave the inflammation unabated, which always increases the evil.

I use kino in the form of a saturated tincture, by adding about three or four ounces to one pint of alcohol (76°). Dose, one to two drachms; for children, from five to twenty drops, every two hours.

Geranium Maculatum—Crow's-Foot, Crane's-Bill, Alum Root.

This little plant is found in all parts of the United States, bordering swamps, and in the woods, near streams. It flowers in April and May. The Indians used it commonly as an astringent. Dr. Eberle has used it very successfully in diarrhœa and the latter stages of dysentery. Dr. B. S. Barton speaks of it in high terms in cholera infantum. It is a good astringent in aphthous affections of the mouth, and enlarged tonsils. Dr. Eberle states that he has cured old chronic cases of aphthous ulceration of the mouth with an infusion of geranium, after all other remedies had failed. The infusion may be made by steeping two ounces of the green or freshly dried root in a pint of water, simmered some two or three hours. Geranium contains a large percentage of tannin, and will do all that any of the vegetable astringents do, and it is much more pleasant to take than tannin. The tincture may be made of the fresh root crushed, by adding eight ounces of the root to one pint of alcohol (60°). Dose, one to two drachms repeated every two or three hours.

Geranin.—The geranin is now prepared by B. Keith & Co., New York; Merrell & Co., Cincinnati, Ohio; Tilden & Co., New Lebanon, N. Y.; but it is a very costly article, and possesses no advantage except because of its concentration.

Geranin is the astringent principle of the geranium maculatum. Geranin is principally composed of tannin, and consequently it is similar to that article in its effects upon the system. It is a mild but certain astringent, having a specific tendency to the mucous surface, stimulating and contracting the coats of the capillary vessels. This fact will point to geranin as an important remedy in diarrhoea and other diseases of the mucous membranes, accompanied with hyperæmia of these tissues, or excessive exudation from them. In hæmorrhages, particularly passive hæmorrhages, from the mucous surfaces, geranin is an appropriate remedy. It may be given in such cases in large doses, say from fifteen to twenty grains, repeated every two or three hours. In the advanced stage of dysentery, where the activity of the inflammation has been subdued, and there remains a profuse discharge of sero-sanguineous fluid, tenesmus and tormina, geranin and gelsemin combined with the elixir of opium will soon remove the disease. In diarrhea this is one of our most efficient remedies. It does not so suddenly arrest the discharges and so speedily bind the bowels as tannin, but does not produce pain as tannin often does. As an astringent, it is safe, certain and mild in its action. The dose is from two to four grains.

Lycopus Virginicus—Bugleweed, Water Hoarhound.

This grows in most parts of the United States, in moist land, and flowers in July and August. There are several species. The L. virginicus is officinal. It has an aromatic odor and a disagreeable, bitter taste. Its stem is simple; angles obtuse; leaves broad, lanceolate, serrate. Base alternated, entire, surface rugose, dotted beneath. Calyx four-cleft, and shorter than the seeds. Leaves opposite, flowers in sessile, axillary whorls, with two subulate bracts at the base of each flower. Corolla white, twice as long as the calyx; stamens two, as long as the corolla, inserted on a tube near the base of the upper segment. Anthers erect, two-lobed, pale purple.

Seeds four, longer than the calyx, obovate, compressed, crenate at the top. I have thus very briefly given the botanical peculiarities of lycopus virginicus so that physicians may have no difficulty in gathering it fresh for use.

Medical Properties.—The precise properties of this plant are not well understood. Prof. Rafinesque considered it a good substitute for narcotics. It is regarded as a sedative, tonic and astringent. I have used it only in hemoptysis and other hemorrhages. In hemoptysis it allays irritation, and thereby diminishes the frequency of the circulation, and at the same time, lessens the cough. As an arterial sedative it acts like digitalis, but is not dangerous in its effects, as its action does not seem to be cumulative. As an astringent it is beneficial in diabetes; in fact, it is stated to have cured this disease after the failure of other remedies. It is highly spoken of in chronic diarrhea, and in the chronic stage of dysentery. It has arrested epistaxis after the failure of all other remedies. Some writers think that it is tonic and antiperiodic, none doubt that it is astringent, sedative, and slightly narcotic. Prof. J. M. Scudder says: "The tincture of lycopus, properly prepared, will be found a very valuable remedy, and will take place with veratrum and aconite. It is a very certain sedative where increased frequency of pulse is dependent upon want of power."

It has acted very promptly for me in hæmorrhages, especially in hæmoptysis. It controls the excitement of the circulation, and appears to lessen capillary engorgement more directly than other astringents. It seems to exert the same power over the capillaries of the lungs that ergot exerts over those of the uterus. There is no doubt that it has a direct action upon the sympathetic system of nerves, influencing those functions, more or less, that derive their innervation from that portion of the nerve centers. Hence it may improve a feeble circulation, feeble digestion, nutrition and secretion.

But, besides its influence over these functions, it certainly

possesses astringency, and this astringency seems to be more marked upon the capillaries of the lungs than upon other parts. Prof. Scudder seems to think that this is owing to its sedative action, but it cannot all be attributable to its sedative influence upon the heart; if so, aconite and veratrum would do as well in hæmoptysis as lycopus, which is not the case. It lessens the cough, the night sweats, diarrhæa and frequency of the pulse in phthisis. It is not as active in cases of diarrhæa as some other astringents; but if a mild tonic and narcotic influence is desired with the astringency, then lycopus is an appropriate remedy.

I have used it mostly in infusion, and in this way it is very prompt in action, but is much more convenient in the form of a saturated tincture, made by just covering the fresh herb, well crushed, in alcohol (90°) ; steeping ten days, and straining. The dose will be from one to two drachms, every three hours, or oftener in urgent cases. For children, the dose will be from ten to twenty drops. I would advise all physicians to make a tincture out of the fresh herb in this manner, and to try it in lung affections. It fills its place well.

Acalypha Indica—Indian Acalypha.

There are three American species of this plant, one of which grows in the South and is used by the people in asthma; it is the A. virginiana. The Indian acalypha is found in the East Indies. The American species are homely weeds, found growing in fields and open places, and flower in July and September; they are one or two feet high, with thick and hairy stems, turning purple in autumn.

Medical Properties.—The acalypha indica is a valuable remedy in hæmoptysis, often arresting the hæmorrhage after other remedies have failed. It has even arrested hæmoptysis when it was associated with tuberculosis of the lungs. In hæmoptysis it acts very much like lycopus. Both these articles seem to arrest the hæmorrhage and at the same time to quiet

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the nervous irritation and control the cough more or less. It has been used in some cases of leucorrhœa with prompt success. It doubtless has a marked effect upon mucous surfaces and the capillary vessels of the lungs. It would not be as appropriate in cases of active hæmorrhage where there was excitement of the circulation, as lycopus, as it does not seem to exert the same influence over the heart that lycopus does. It may be used in the form of the saturated tincture, in doses of one or two drops every two or three hours, or more frequently if the symptoms are urgent. It acts best in small doses.

Matico-Matico.

Matico is a very powerful hæmostatic, but it is thought to arrest the flow of blood by its mechanical and not by any astringent properties. It has been found of much benefit in some copious internal discharges, as menorrhagia, leucorrhæa, catarrh of the bladder, etc. It certainly possesses some astringency. It may be used in the form of tincture or infusion. It is a very valuable remedy in ozæna, alternated with the solution of permanganate of potassium. For this purpose it may be made into a strong infusion, and thrown up the nares with a syringe, twice or thrice a day.

The saturated tincture is made by adding the leaves, direct from South America, to alcohol (50°), just so as to cover them. The dose would range from one to two drachms, every two or three hours. The infusion may be made by adding hot water to the leaves, say two ounces to a gill of water. Dose, one-fourth to half an ounce, every two or three hours. For the purpose of stopping blood in an external wound, the underside of a leaf may be applied to the wound, or the finely powdered leaves may be used freely. It is a very active hæmostatic, but not as effective as the persulphate of iron. In ozæna it is a very good remedy. I have used it in several cases, with good effect.

Statice Caroliniana-Marsh Rosemary, Ink Root.

This species is found along the coast from Maine to Florida, flowering during the latter part of summer. The root is the officinal part.

Medical Properties.—Marsh rosemary is a very positive astringent. It is used a good deal in bowel affections. In the form of the decoction, it is used very successfully as a gargle in ulcerations of the throat and mouth. It is also antiseptic, and as such is preferable in all cases of ulceration of mucous surfaces where there is a septic tendency. The infusion is a good injection in gleet, and, when united with gold-thread, for the latter stage of gonorrhæa. The infusion need not be very strong. In leucorrhæa, where there is a septic tendency, this, united with an infusion of macrotis and hydrastis, makes one of the best injections found in the vegetable materia medica, and is superior to other astringents. A strong decoction of the marsh rosemary is a good wash for prolapsus uteri.

As an internal remedy in diarrhoa, a tablespoonful of the infusion may be given every hour or two; for children a teaspoonful. For internal use the saturated tincture may be made by adding eight ounces to one pint of alcohol (60°). Dose, one to two drachms, every one or two hours, as may be required; for children, ten to thirty drops, according to age. Like all other remedies, it should be made in its fresh state, or it is worthless.

Krameria Triandra-Rhatany.

The small, shrubby plants of this genus are mostly natives of the warmer parts of the American continent.

Medical Properties.—Rhatany is a very powerful astringent, and ranks with kino and catechu. It is much used to check profuse discharges from the mucous surfaces, and to give tone to them and to the relaxed muscles in a state of debility. It may be used in fluor albus and passive menorrhagia, and other passive hæmorrhages. It is a good mouth-wash, com-

bined with gum myrrh, in cases of soft, spongy gums inclined to hæmorrhage.

This article owes its astringent properties to tannin and krameric acid. This, like most of our vegetable astringents, is incompatible with acids and mineral salts. It possesses a tonic as well as an astringent property. It is a very suitable astringent in chronic diarrhea, where there is debility, as it acts as a very mild tonic and as an active astringent. It fills the indications of an astringent.

The infusion, extract, syrup and tincture are officinal. The infusion may be made of any desired strength; one or two ounces of the root to the pint of water is the usual strength. The essential tincture may be made of the freshly dried root, eight ounces to one pint of alcohol (76°). The dose should be from thirty to sixty drops every one or two hours. The dose of the extract is from five to ten grains.

Hæmatoxylon Campechianum-Logwood.

This tree is a native of Campeachy, South America, but is now naturalized in the West India Islands. The heart wood is used as a medicine.

Medical Properties.—The extract of logwood is now commonly used. It is a mild astringent. It is applicable in diarrhoea and that relaxed state following cholera infantum and cholera morbus. It may be used in the form of infusion in doses of from half an ounce to one ounce; the dose of the extract is from half a drachm to one drachm.

Rubus Villosus—Blackberry. Rubus Trivialis— Dewberry.

The dewberry and blackberry are both very mild and pleasant astringents. The dewberry is the more active, and is applicable in all cases where a mild astringent is wanted. An infusion of the dewberry root is much used by the people in cases of bowel diseases of children. It is a very good astringent in diarrhœa of children, and is much pleasanter to take

than many other articles of this class. I have used it in connection with other remedies in the milder forms of dysentery, where there was no fever, and with happy effect. It is a good remedy in summer complaint of children. It is usually given in the form of the infusion, made by adding two ounces of the fresh root to one pint of water; dose, one to two ounces.

Arctostaphylos Uva Ursi, Arbutus Uva Ursi—Bearberry.

This plant is found in the northern parts of Europe, Asia, and America; it usually grows in dry, stony or sandy land. It flowers from June to September, and ripens its berries in winter. The leaves are the only part used.

Medical Properties.—Uva ursi is a tonic and astringent. It is not much used as an astringent, except in diseases of the urinary organs, for which it has a special affinity. I have used this article a great deal in chronic inflammation of the bladder, combined with buchu and pipsissewa, and sometimes with pareira brava, and it has a very positive influence over the mucous membranes of the urinary organs. The above mixture has a good effect in gleet and chronic gonorrhæa. In calculi, a strong infusion, taken freely, seems to constringe and toughen the coats of the bladder so that the patient's suffering is much mitigated. In irritability of the bladder, uva ursi, combined with hyoscyamus, will be found to lessen the irritability very much.

It is used in the form of the infusion, one to two ounces to a pint of water, simmered slowly until the strength is extracted. The dose is one to two ounces every two hours. The tincture may be made by adding eight ounces of the leaves to one pint of alcohol (50°) . Dose, one to two drachms.

Agrimonia Eupatoria-Agrimony, Sticklewort.

Agrimonia has brown stems, covered with soft, silky hairs; it is two or three feet high. The leaves are alternate, sessile, interruptedly pinnate. The root is creeping. The flowers

grow at the top of the stem, and are of a yellow color, small, and very numerous, one above another in long spikes; after they fall rough heads are left hanging downwards, which will stick to the clothing or anything that chances to touch them. It is found in Asia, Europe, Canada and the United States, growing along roadsides, fields and in woods. It flowers in July or August. Both the flowers and roots are fragrant, but of an astringent, harsh taste. It yields its virtues to water and alcohol. Perhaps its virtues reside in the roots and tops.

Medical Uses.—It has long been much used by non-professionals as a mild astringent in diarrhœa and dysentery, and it seems to be well suited to such cases, as it has a specific tendency to the mucous surfaces of the bowels and of the uterus. The root possesses more astringency than the tops, but the latter have more of the demulcent and diuretic properties. I have seen it used in cystitis, nephritis and irritable bladder with apparent success. It was at one time regarded as an alterative in scrofula, but I have not used it for that purpose.

One of its most important uses is in leucorrhæa, where a mild astringent is required. For this purpose the tincture or fluid extract may be given internally, and an infusion, or the fluid extract diluted with fourteen parts of water, used as a vaginal wash. The dose of the fluid extract is from one-fourth to half a drachm. The dose of the saturated tincture is from half a drachm to one drachm. The dose of the infusion is from one to two ounces three times a day.

Creasotum—Creosote.

Creosote, as a styptic, is often applied to the bleeding cavities of decayed teeth, and to control other passive hæmorrhages. It is much used to kill the spongy growth of flesh in decayed teeth; its powerful astringency so contracts the distended capillaries that the excessive granulation is arrested. It is used in hæmoptysis and hæmatemesis; also, in leucorrhæa and bronchorrhæa. It is a valuable remedy for vomiting, in

cholera and cholera morbus, and in the vomiting of pregnancy. The dose is one or two drops, every two or three hours, well diffused in mucilage. As a local application to bleeding wounds, one part to one hundred of water is the proper strength, applied on cloth. Creosote is inferior as a styptic to the persulphate of iron.

A good preparation for use in diarrhœa, chronic dysentery, and hæmorrhage of the lungs and stomach, is to add eight drops to four ounces of mucilage of gum acacia, and give a table-spoonful every one, two or three hours, according to the urgency of the symptoms; to children, a teaspoonful. This preparation may also be given in diarrhœa, and the latter or chronic stage of dysentery, and often with good effect. The undiluted creosote is a good application, on a bit of lint, to an aching tooth, but the cavity should be kept filled with it.

Chimaphila Umbellata — Pipsissewa, Wintergreen, Ground Holly, Wild Arsenic.

This beautiful little evergreen is found all over the United States, and was much used by the Indians for rheumatism.

Medical Properties.—I have already noticed this plant, but its astringency is worthy of notice. As a remedy in urinary diseases it is unsurpassed, and it is its astringent and tonic virtues that render it so beneficial in mucous diseases of the urinary passages. It is peculiarly applicable to cases of chronic inflammation of the kidneys and bladder. Its mild astringent and tonic effects are very beneficial to the congested state of mucous surfaces. It is, as I stated before, a valuable remedy in dropsy, and its power to cure dropsy does not depend on its diuretic properties alone, but upon a specific influence over the organs of excretion and secretion. It has the power, like ampelopsis quinquefolia, to restore the lost balance between endosmosis and exosmosis. As an astringent, it is not active enough to depend on in diarrhæa, but may be added to more powerful astringents for its tonic effect. It is generally used

in strong infusion, in doses of one or two ounces. The tincture may be made by adding eight ounces of the fresh herb to one pint of alcohol (76°). Dose, half a drachm to two drachms. A fluid extract of pipsissewa and hamamelis, equal parts, is a good application to piles.

Chimaphilin.—Chimaphilin is the concentrated principle obtained from the chimaphila umbellata. This remedy possesses tonic, diuretic and alterative properties, but has a special tendency to act upon the lymphatic system; hence it has a wide range of action. Many diseases are caused by, and many more are associated with disease of the lymphatic system, consequently the chimaphilin may be of material service in the treatment of diseases thus associated with inaction of the lymphatics. In chronic diarrhæa, leucorrhæa and all diseases connected with obstruction of the lymphatic system, it may be combined with other remedies suitable for each special disease.

In dropsy, chimaphilin is an active agent in restoring the equilibrium between endosmosis and exosmosis, and at the same time it exerts a general tonic effect and an alterative influence on the whole system. In dropsy it may be combined with ampelopsin and barosmin until the superabundant fluid is removed, then iron may be added; and there are few cases of dropsy which will not yield to this combination if perseveringly continued. As an alterative it is an important remedy in the scrofulous cachexia, syphilis and cancer, and may be combined with other alteratives as may be indicated. The usual dose is from one to three grains; or triturated one grain to ten of lactin, the dose of the trituration is from ten to thirty grains, every three hours. I prefer the fluid extract or the essential tincture in most cases.

Abies Canadensis—Hemlock Spruce. Pinus Canadensis— Extract of Hemlock.

Abies canadensis, or hemlock spruce, contains an oil, called oil of spruce, and pitch, called pix canadensis, and also an

astringent principle, now used extensively in mucous catarrhal affections. There are several species of abies, all furnishing a balsamic principle, isomeric with oil of turpentine (C_{10} H_{16}), and having similar properties. The tincture of the A. balsamea and of the A. canadensis is indicated in general asthenia with want of vascular tonicity, where the mucous membranes are pallid, or secreting too profusely. It is indicated in catarrhs of the mucous membranes.

It may be used internally in diarrhoea with marked effect, in doses of thirty drops every two hours, until the discharges are lessened in quantity and frequency; then the dose may be lessened as the disease yields to the astringency of the medicine.

Local Action.—Locally the pinus canadensis, in the form of a fluid extract, may be used in chronic mucous inflammation of all the various surfaces lined with that membrane. In leuchorrhæa, an infusion may be used as a vaginal injection, three times a day. It is a good application to scalds and burns. In ordinary catarrh, one drachm of the fluid extract may be added to eight ounces of warm water, and used with a nasal douche, twice or thrice a day. In gonorrhæa, in the passive, or chronic stage, one part of the fluid extract mixed with six or seven parts of water, and used as an injection three times a day, aids in curing this disease. It has been used for diphtheria, but it would not do to depend upon it in the graver forms of that disease. It has a good effect in passive hæmorrhages, and may be alternated with hamamelis.

The extract of abies canadensis has lately attracted attention as a peculiar astringent in some conditions of the mucous membranes. It has been recommended in prolapsus uteri and leucorrhœa, and my trials with it in these affections have confirmed the statements made by others in regard to the curative effects of this remedy. I use the extract, first diluting it with from two to three parts of water, and gradually increasing the strength until I get up to the pure extract. I have been well pleased with the effects of this article in some obstinate cases of

vaginal leucorrhea. In one case I had, I wet lint in the extract of pinus canadensis, and applied it through the speculum; withdrew the speculum and left the lint for several hours; then renewed the application. In this way some of the worst cases of leucorrhea may be cured.

I have not used it in catarrh of the mucous membranes of other parts, but it is more than likely that it may prove of utility in catarrhal affections of other organs. It will doubtless prove valuable in some cases of chronic diarrhæa and dysentery, where all inflammatory excitement has been subdued. Astringents all differ in their sphere of action, and when we learn the specific tendencies of each one, we will be enabled to accomplish much good with this class of remedies.

Erigeron Canadense—Fleabane. Oleum Erigerontis— Oil of Erigeron.

There are eight species of this genus, three of which are considered to possess similar medical qualities, that is: erigeron canadense, E. Philadelphicum and E. annuum. The last named is biennial and the E. Philadelphicum is a perennial herb. This plant has been in use a long time, first being used by the Indians as a vulnerary, as we use arnica, and was called by them cocosh. These plants contain tannin, extractive matter, gallic acid, amarin, and an essential oil. The tineture of the plant or the oil is used.

As an astringent, erigeron is inferior to no remedy. In uterine hæmorrhage it acts with absolute certainty, either in post partum hæmorrhage or in menorrhagia. Some writers recommend it in very large doses; that is, from eight to ten drops, but it is not necessary to give such a large dose. I use the tincture of the plant in doses of thirty to sixty drops, or a tincture of the oil, one part of the oil to nine parts of alcohol; the dose is then from ten to fifteen drops every half-hour, or hour, according to the severity of the hæmorrhage. If there is no foreign substance, as a placenta or tumor, in the uterus,

it seldom fails to arrest the hæmorrhage in a few hours. I have given it frequently in diseases of the mucous membranes, as in gonnorrhæa and gleet, and in the chronic stage of either affection it acts well. In cases where copaiba and cubebs have failed, it seldom fails to arrest the disease. It is not applicable in cases where there is a high degree of inflammation.

In tympanites, occurring in typhoid fever, enteritis or peritonitis, the action of erigeron very much resembles that of turpentine. Prof. E. M. Hale says he uses half a drachm of the oil, beaten up with the yolk of an egg, and mixed with a pint of milk, as an enema in cases of tympanites. The worst forms of tympanites yield to this treatment after a few enemata thus given.

It not only arrests hæmorrhages of the uterus, but has been very successful in arresting epistaxis, bleeding from the gums, or the cavity of a tooth. In hæmatemesis, from ulceration of the stomach, it is a very efficient agent. In chronic dysentery, diarrhea, and in hæmorrhoids or piles, it is one of our best remedies when given internally, and an ointment of the oil used externally upon the tumors. The ointment may be made by incorporating the oil of erigeron with olive oil, glycerine, or cocoa butter. It is a good remedy in uterine leucorrhea, for which the tincture of the oil may be given in doses of ten or fifteen drops three times a day. In catarrh of the bladder it acts much like uva ursi. In tonsillitis, as a gargle, it is a very prompt remedy. It has a specific tendency to the capillary vessels, contracting their muscular coat, and thereby lessening their caliber: thus it checks mucous discharges, arising from relaxation and distention. In this way it also checks all passive hæmorrhages.

Erechthites Hieracifolia-Fire Weed.

The oil of erechthites hieracifolia, or fire weed, acts in a similar way to the oil of erigeron, and may be used in the same preparations and doses.

Hamamelis Virginica—Witch Hazel.

Hamamelis virginica is an indigenous shrub called snapping-hazelnut, spotted alder, etc. It grows from ten to twelve feet high, and is covered with a smooth, gray, and rather spotted, bark. It is a larger shrub than the edible hazelnut, and has a seed in the fall resembling it, but much smaller and very hard. It grows in most parts of the United States, near streams. It flowers from September to November, and matures its seeds the following summer. The bark and leaves are the parts used in medicine.

Medical Properties.—This is one of our best astringents for many purposes. As an application to hæmorrhoids it has the happiest effect; for this purpose the fluid extract may be used as a local application, and small doses taken at the same time; say fifteen to twenty drops, three times a day. This remedy possesses direct power over the venous capillaries. varicosis, venous congestion, passive hæmorrhages, and even in structural lesions, it has remarkable curative effects. It is a good application to varicose ulcers, and other diseases depending upon venous obstruction. In phlegmasia dolens it is one of our best remedies, and should be given internally and applied locally. In all passive hæmorrhages where they depend upon the state of the vessels, and not upon the blood itself, it may be used with the happiest effect. The fluid extract or the saturated tincture of the bark and leaves, may be used in doses of twenty to thirty drops, repeated every two or three hours.

Hamamelin—Hamamelin is the essential medical principle of hamamelis virginica. This article has many of the properties of astringents in general; but it has an elective affinity for the mucous surface of the vagina, uterus, urethra, bladder and ureters. It corrects morbid discharges from these organs, and seems to impart tone to their mucous membranes, and hence its application in many diseases of the genito-urinary organs. It has considerable influence over the mucous surfaces

of other organs, but its specific tendency is to the mucous surface of the vagina and urethra. In vaginal leucorrhœa, this is one of our most certain remedies; in uterine leucorrhœa, it will also be found to act favorably, especially when combined with helonine and caulophyllin in proper doses, say one or two grains each, three or four times a day.

In that irritable state of the urethra causing ardor urinæ of females, hamamelin combined with belladonna and gelsemin, in proper doses, and given three or four times a day, will give relief. In the irritability of the bladder and urethra that attends pregnancy, and in irritable habits in menstruation, hamamelin, given in one-grain doses, three or four times a day, will generally give prompt relief. In catarrh of the bladder, this, combined with polygonin, will be found a certain and speedy remedy. The usual dose is from one and one-half to two grains. An ointment of hamamelin in glycerine is a prompt remedy for piles.

Prenanthes Alba, Nabalus Albus—Lion's Foot, White Lettuce, Rattlesnake Root.

This is an indigenous perennial plant, and has a smooth stem, stout and of a purple color, from two to four feet high. The radical leaves are angular-hastate; the cauline leaves lanceolate, and irregularly dentate. It grows plentifully in the moist woods of New England to Iowa, and from Canada to Carolina. The root, leaves and juice of the plant are used.

Medical Properties.—This is a new remedy, and has not been fully tested, but from the limited use it has been satisfactorily proven to be a good remedy in dysentery and summer diarrhæa. It has also been used with success in leucorrhæa of a uterine character. It doubtlessly impresses the mucous membranes, and will, when tested, be found a positive remedy for certain diseases of that tissue. It has acquired some reputation in the bites of serpents, for which purpose it is applied locally as a poultice, while the tincture is given inter-

nally. Prof. Scudder says: "In large doses, the infusion is a powerful diaphoretic." In over-doses it is liable to produce headache and pains in the limbs, with dullness of the mind and constipation. It influences the nervous system, and will doubtless repay investigation.

A saturated tincture of the roots and plant may be made by adding eight ounces to one pint of alcohol, the dose of which should be from one to twenty drops, according to the effect desired. As a remedy for dysentery, four to five drops may be given every hour; for diarrhæa, the dose is one to two drops every two hours.

Myricin.

Myricin is the active principle of the myrica cerifera. Myricin exerts a tonic effect upon the mucous membranes. In chronic diarrhœa, it may be given, combined with other astringents, with good results. In chronic bronchitis, where there is loss of tone in the mucous tissue, myricin, combined with stillingin and syrup of sanguinarin, will exert a sanative influence. In cases of leucorrhœa, connected with a flabby state of the mucous tissues, myricin, combined with hamamelin and iron, or helonine, will give prompt relief. In aphthous affections of the mouth, this remedy, alternated with the chloride of iron, will act with promptitude and certainty.

In gleet, one or two grains of myricin given every three or four hours, and one grain dissolved in one ounce of rose water, and injected into the urethra every four hours, will speedily relieve the disease. In leucorrhœa, five or six grains dissolved in a gill of warm water, may be used as an injection, with happy effect. In old ulcers, of a phagedenic character, myricin may be combined with hydrastin, and dissolved in glycerine, and spread on the surface of the ulcer, with good effect. The usual dose of myricin is from one to two grains, three times a day.

Trillin.

Trillin is the active principle of the trillium pendulum. It seems to have some considerable astringency, and a tendency to the mucous surfaces, especially that of the uterus, and some tendency to the urethra and vagina. It contains a large percentage of tannin, and it may be that its virtues are mainly attributable to that article. It may be used in passive hæmorrhages and exudations from the mucous membranes of the uterus, vagina and urethra with good results. In leucorrhæa, it may be combined with hamamelin and fluid extract of ergot, with the happiest success. In menorrhagia, it may be combined with the oil of erigeron and gossipiin, or fluid extract of ergot, and given in doses to suit the condition of the patient.

It is highly spoken of by some writers, in spermatocele, and diseases of the spermatic cord, but I have not used it in these conditions. Some writers seem to think that it has a direct tonic effect upon the muscles of the uterus, and say that it frequently cures prolapsus uteri, by giving tone to the muscles of the uterus; but I would not rely on it in cases of that disease. As a gargle, it is of much benefit, combined with muriate of hydrastia, in aphthous affections of the mouth. In my trials with it I found it to be a mild but efficient astringent, well adapted to slow or passive hæmorrhages, etc. The dose is from two to five grains, every two or three hours. I have recently used it with good effect in menorrhagia.

Rhus Aromatica—Fragrant Sumach.

The rhus aromatica in the form of the tincture is a mild astringent, and is of much utility in diabetes. In doses of one drachm every three or four hours, I have used it, alternated with lycopus, in several cases of diabetes. It is also a good remedy for children that wet the bed at night.

II. MINERAL ASTRINGENTS.

Alumen-Alum, Sulphate of Aluminium and Potassium.

Alum is used as an astringent in passive hæmorrhages. It is not applicable in diarrhæa, as it is an irritant to the mucous coat of the bowels, and becomes a purgative in large doses. Given in doses of three or four grains it is a good remedy in hæmorrhage of the stomach, but is inferior to the persulphate of iron. It is a good gargle in sore throat, or prolapsus uvulæ (fall of the palate). For this purpose it should be powdered and blown through a quill onto the palate; or a strong solution should be gargled every half hour or hour, until relief is obtained. A good application in tonsillitis is cayenne pepper, one drachm; alum, two drachms; vinegar, four ounces; steep by the fire until the alum melts, then the inflamed tonsils may be wet with this by means of a small mop every half hour. A strong solution may be thrown up the nose in cases of bleeding from the nares, when the persulphate of iron cannot be had.

A teaspoonful of the powdered alum given every fifteen minutes will cause emesis in croup, and may be used when no other remedy can be had. Alum boiled in milk forms what is called alum whey, and is a good application in ophthalmia. Burnt alum is a mild escharotic to destroy the spongy granulations, called proud flesh.

Plumbi Acetas-Acetate of Lead, Sugar of Lead.

The acetate of lead, commonly called sugar of lead, was much used some years ago as an astringent, but on account of its very great liability to produce lead colic and lead palsy, it is not now much used in that way. The discovery of oil of erigeron has fortunately superseded the internal use of lead. It is a very poisonous mineral in large doses, or when continued any length of time, even in small doses. Sulphuric acid and sulphate of magnesia are antidotes to lead.

It is of use, however, as an external application. It is cooling to some peculiar cutical inflammations, as contusions, the

poison of the rhus toxicodendron and other vegetable poisons. Acetate of lead and sulphate of zinc make a good wash for some old, indolent ulcers. I have often used one and one-half grains of sulphate of zinc and three grains of acetate of lead to the ounce of distilled water as an injection in gleet and chronic gonorrhæa, when I could not get the acetate of zinc. In some cases of simple conjunctivitis the above solution acts well, and is often all that is required. In many cases of humid scald-head of young children this solution, doubled in strength, cures the disease in a few days. The same solution is a good remedy in leucorrhæa, pruritus, etc.

Argenti Nitras-Nitrate of Silver, Lunar Caustic.

Nitrate of silver is considerably astringent, but so soon blackens the skin that it cannot be used long, and as there are now so many vegetable astringents superior to it, it is not so much used internally. It is often useful as an escharotic, to arrest spongy granulations, and to remove corns, etc. Some physicians use it as an injection in gonorrhæa, but it is very severe, and very liable to produce stricture. It is a good remedy for ulcerations on the gums, lips, and on the palate, and for this purpose it may be dissolved, ten grains to one ounce of distilled or rain water, or the common stick may be applied once or twice a day.

It is used by some physicians in strong solution, or in stick form, to cauterize the neck of the uterus; but it is now superseded by the permanganate of potassium, which is much safer and better. A few applications of a strong solution of nitrate of silver is all that is necessary to cure any ringworm, large or small. Years ago nitrate of silver was prescribed in epilepsy, but it so signally failed, and its liability to blacken the skin was so great, that it is now seldom used for that purpose. As an application to indolent ulcers, it sometimes seems to produce a healthier condition and thus do good; for this purpose I prefer to use the stick.

Ferri Persulphas-Persulphate of Iron.

This preparation of iron is a fine astringent; in fact, it is the most powerful external astringent that we have. For internal administration it is not so powerful, as it undergoes decomposition, and acts like other iron salts, as a chalybeate. It is a very powerful styptic, and will arrest hemorrhage from small vessels very promptly. As an injection for prolapsus uteri this is the most powerful remedy we have; it may be used in a solution of ten or twenty grains to the ounce of water, or the common solution, diluted one-half, is strong enough.

For common use it may be readily prepared as follows: Sulphate of iron, one ounce; nitric acid, ninety drops; sulphuric acid, fifty-five drops, or enough to dissolve the sulphate of iron when stirred with it in a mortar; when the iron is dissolved gradually add the nitric acid, stirring gently all the time; then add one pint of water. This forms a good styptic. I use it as a wash in leucorrhœa, where there is no inflammation, and where the parts are flabby and very much relaxed. In piles, if the tumors are not too large, it cures them entirely. It may be applied, diluted one-half with water, twice or thrice a day, and held on the tumors a few minutes. If the tumors are internal it must be applied by injection, or just after stool, if they then protrude.

Ferrum—Iron. Tinctura Ferri Chloridi — Tincture of Chloride of Iron.

The sulphate and perchloride of iron and the tincture of the chloride of iron are astringent, but the last-named preparation is mostly used. The tincture of acetate of iron, iron by hydrogen, or Quevenne's iron, are all astringent. Iron has already been spoken of as a restorative: we have only to speak of it here as an astringent. The tincture of the chloride of iron has an important place as an astringent in hæmorrhage from the kidneys. I have often relieved this affection by giving fifteen to twenty drops of the tincture of chloride of iron every two or

three hours in half a glass of water. It will be found a good hæmostatic in all hæmorrhages of a passive character, where the mucous membranes are blue or purplish, and the complexion pale or waxy. This preparation of iron acts more promptly as a hæmostatic than other preparations. It is made by saturating carbonate of iron with muriatic acid; say upon four ounces of subcarbonate of iron, in a glass vessel, pour half a pint of hydrochloric acid, and when effervescence has ceased apply gentle heat until the iron is dissolved, then filter, and add one and one-half pints of alcohol. Keep in a glass-stoppered bottle. The usual dose is from ten to twenty drops, repeated three or four times a day, well diluted with water, and taken through a quill.

Zincum-Zinc.

The sulphate, chloride and iodide of zinc are astringent, but the sulphate and chloride are the most powerful. The solution of the sulphate of zinc from one to five grains to the ounce of water makes a good astringent wash for old indolent ulcers; as an injection in leucorrhœa or gonorrhœa it is also very valuable. For an injection in gonorrhœa it need not exceed one or two grains to the ounce of water. For leucorrhœa, where there is a septic tendency, the solution of the chloride is preferable, and may be made by adding three or four grains to an ounce of water.

The chloride of zinc makes a good escharotic to remove fungoid growths; for this purpose it may be mixed with honey and flour or starch, equal parts, and worked into a paste and applied on a bit of soft leather or cloth. It is one of our best applications to old indolent ulcers with flabby edges, and the fact that it cures them up so readily has led a great many quacks to believe that it will cure cancer; but it does not cure a true scirrhus cancer, as that is a disease which has its seat in the blood, and is not to be cured by any local application. The sulphate and chloride of zinc are both antiseptics and, applied in

time, will often arrest gangrene; for this purpose, a strong solution may be employed, say ten to twenty grains to the ounce of water. Sulphate of zinc in large doses, say ten or twenty grains, is an emetic, acting very promptly.

Cupri Acetas-Subacetate of Copper, Verdigris.

This is copper dissolved in acetic acid, and is a good detergent wash for sore eyelids. It is an active escharotic for fungous flesh, warts and foul ulcers. A strong solution will readily cure ringworm. It dissolves in alcohol. If taken internally it is poisonous. The white of eggs is the best antidote. The sulphate of copper is used much more than the above preparation, and is a good application to warts and other fungous growths and ill-conditioned ulcers. It is a good application to cuts or ulcers that are inclined to fungous granulations; for this purpose a little of it may be powdered on the parts, or a strong solution, say from ten to twenty grains to the ounce of water, applied occasionally will soon produce a tendency to heal.

From two to four grains to the ounce of water makes a good collyrium for chronic ophthalmia. From half a grain to one grain to the ounce of water forms one of our best injections for gonorrhœa. I have often used this preparation in the latter stage of this disease with good effect. It is not now used internally to any great extent. Prof. Scudder says it is indicated in some peculiar cases of anæmia, characterized by a bluish color of the skin.

CHAPTER XI.

Sialagogues—Salivants.

CALIVANTS are medicines that excite the salivary glands. In many diseased conditions of the system, the salivary and other glands become obstructed in their action; and some remedies, by correcting the cause, remove this condition, and thereby restore the action of the obstructed glands. There are some other salivants, as mercury, which increase this action by a toxic one, and leave the glands in a diseased condition. saliva is a slightly alkaline viscid fluid, containing about one per cent. of solids, consisting of mucous cells, alkaline salts, a small quantity of albumin, and of a substance called ptyalin, which has the power of converting starch into sugar. Thus it is apparent that when this secretion of the glands is obstructed or diseased, it interferes very materially with digestion. In typhoid fever this secretion is often obstructed, and so it is in other fevers, and in many inflammations. This condition seems to be associated with, or caused by excess of alkalies in the blood, and is readily relieved by the administration of acids, of which muriatic acid is preferable.

Many substances act as sialagogues, by exciting the mucous surface of the mouth. The food accomplishes this, as also do certain irritant substances, as prickly elder (aralia spinosa), and prickly ash (xanthoxylum fraxineum), and ginger. Creosote has this effect, and is often resorted to for the purpose of relieving toothache. This secretion should always be kept in a healthy state, for it and the pancreatic fluid convert starch into glucose, and then into sugar; but it is believed that the bile also aids in this process, and it is very probable that it does so.

There is another class of medicines that act on the salivary glands in a different way, as hydrocyanic acid, tobacco, digitalis and nauseants; these act by paralyzing the muscles by which the constriction of the salivary ducts is maintained. The true sialagogues are such remedies as restore this secretion to a healthy state, such as the acids, xanthoxylum, and some others. Mercury, by a toxic effect, inflames these glands, causes a powerful flow of saliva and other fetid products, and often causes very dangerous sloughing of the gums, and caries of the bones, with many other evil consequences.

In some cases iodine produces a kind of salivation. And the internal use of lead sometimes produces the same effect. Chlorate of potassium is a sialagogue, and very useful in aphthous affections of the mouth, as cancrum oris, and in some other superficial inflammations. It seems to have a direct affinity or tendency for the glands and mucous surface of the mouth, for it affects that part even when introduced into the general circulation.

The pancreatic fluid very much resembles the saliva. The true sialagogues probably increase the action of the pancreas as well as the salivary glands; and hence the advantage of the mineral acids, especially muriatic acid, in many cases of dyspepsia. I have often witnessed this action of muriatic acid in cases of dyspepsia. I have also noticed the good effects of xanthoxylum in dyspepsia. Many of our exciting tonics act more on this principle in relieving cases of indigestion than on any other. The secretions of the mouth should always be looked to before prescribing in dyspepsia.

Xanthoxylum Fraxineum-Prickly Ash.

Xanthoxylum is an active stimulant to the entire system, and especially to the salivary glands. When the bark is chewed or swallowed, it powerfully excites the glands of the mouth; and doubtless the pancreas and liver are also stimulated to more vigorous action. In the low states of typhoid fever, where the

salivary secretion is deficient, I have used this article with good effect, as it not only excites the salivary glands, but is a gentle stimulant to the whole system. As a stimulant to the mucous surfaces it acts with great promptitude. When such an action is needed, either of the mouth, throat, gastro-intestinal tract or air-passages, we may rely on it. In cases of relaxation of the mucous surfaces, and hypersecretion from that condition, in small doses it acts as a natural tonic to the relaxed mucous tissues.

The aralia spinosa, or prickly elder, acts similarly, and in many cases will answer the same purpose. The extract, when prepared from the fresh, or recently dried bark, is reliable. This is called *xanthoxylin*, and is prepared by Keith & Co., Merrell, Gorden, Greve, Tilden and others. The tincture may be prepared by adding six ounces of the crushed bark to one pint alcohol (96°). Dose, five to ten drops three times a day.

Potassii Chloras-Chlorate of Potassium.

Chlorate of potassium is one of our best sialagogues where there is an aphthous ulceration of the mucous tissues. It is also applicable where there is a septic tendency, or any other superficial inflammation of the mucous tissues of the mouth. This salt in solution, passing over the diseased surface, exerts a topical action, serving as an antiphlogistic. In cases of extensive ulceration where it is inconvenient to apply it locally, it may be given in doses of from three to five grains every three hours, and it will act through the blood. As stated before, it has an affinity for the salivary and buccal glands, and the mucous tissues.

All remedies have specific tendencies to certain parts of the system; and this one seems to have this affinity for the glands and mucous tissues, especially of the mouth. This tendency to the glands, together with its antiseptic powers, renders chlorate of potassium a very appropriate sialagogue in aphthous diseases, or where there is a septic condition in the blood—which is very often the case in low typhoid conditions of the system in many diseases. In cases where this septic tendency exists, where the tongue is pale, and the mucous membranes are also pale, this article, or sulphate of soda, may be given; but if the tongue be red, muriatic acid may be prescribed with confidence.

Pilocarpus Pennatifolius—Jaborandi.

The sialagogue properties of jaborandi and pilocarpine have already been fully described in the section on Antiscrofulics on page 211.

CHAPTER XII.

Blennorrhetics---Expectorants.

DLENNORRHETICS (from blenna, mucus, and reo, I flow), are medicines which promote the secretion of the mucous membranes. They are employed therapeutically in morbid conditions of the mucous membranes, as in deficient, abnormal or excessive action. When they are given with a view of stimulating the action of the mucous membranes of the bronchial or laryngeal tubes they are termed expectorants, and are prescribed in the subacute and chronic forms of bronchitis and laryngitis, in the latter stages of the acute forms of those diseases, and also in pneumonia. But in the early or acute stages of bronchitis and laryngitis, the stimulating expectorants are inadmissible until the inflammation has been so lowered that expectoration has been established.

The true blennorrhetics are less employed in gastro-enteric affections than in those of other mucous membranes, owing to their tendency to produce catharsis. Some of the oleo-resins are used with advantage in certain forms of chronic diarrhœa, and the oil of turpentine is much used in the diarrhœa of typhoid fever. The oleo-resins are used in diseases of the urinogenital mucous membranes, as in gleet, gonnorrhœa, leucorrhœa, cystitis, urethritis, etc. We know that anything which causes cough, as an irritant gas, will act as an expectorant. Anything that thins the mucus when it is too thick and viscid, as the inspiration of the vapor of hot water, will act as an expectorant.

There are some special sedatives which control the functions of the vagus nerve; thus they act as expectorants indirectly; ipecacuanha and lobelia are examples of this class. By allaying the spasm of the smaller bronchial tubes and controlling the nervous sensation of want of breath, they may promote the evacuation of the mucus already secreted. Opium and stramonium, classed among narcotics, depress the functions of this nerve as well as the nerve forces generally; this is true of other medicines of this class. Opium in small doses allays irritability and diminishes spasm, and is then an indirect expectorant; but large doses act so powerfully as to render respiration difficult and expectoration impossible. Hence opium should be given with much caution in all pulmonary diseases.

The action of ipecacuanha and veratrum upon the secretion of bronchial mucus is of so specific a character as to render it highly probable that these medicines add to their neurotic influence, a true eliminative agency. Squills is probably an eliminative expectorant also. When, in bronchitis, the secretion is purulent, expectorants cause a healthy secretion which replaces the diseased one. Expectorants are rather uncertain agents, because the pulmonary glands are not naturally formed to separate morbid materials from the blood, and are less under the influence of eliminative medicines than other glands, the proper office of which is to eliminate directly from the blood. Sometimes expectorants pass off by the skin and kidneys and then they do not act on the lungs.

From the fact that expectorants are uncertain in action, and that the lungs are not emunctories to eliminate morbid materials, expectorants are useless as antiphlogistics. They may be employed in lung diseases where it is desirable to influence the amount and character of the mucous secretion. In old chronic cases of bronchitis the stimulant volatile expectorants are the best. Ipecacuanha and lobelia are the best in subacute, and veratrum, in acute forms of disease of the lungs, because they nauseate and depress the action of the heart; this is particularly true of veratrum. They are sometimes given as emetics in lung diseases; they then assist the expulsion of

mucus from the air passages. They are valuable remedies when they are indicated.

Scilla Maritima—Squills.

In large doses squills is an active stimulating expectorant, and has the effect of moderating the secretion of the mucous membranes. In small doses it relieves irritation of the mucous surface, and stimulates the secretion. Hence, in cases where the secretion is deficient, it should be given in small doses in the form of the tincture. It is more liable to disagree with the mucous coat of the stomach than most other expectorants. It is applicable in pneumonia and bronchitis, where the expectoration is difficult and scant, and in these cases it should be given in small doses, say from ten to twenty drops every three hours, or oftener, if necessary. Where the secretion is very profuse, then it may be given in large doses, say from forty to sixty drops, every three hours; or, in obstinate cases, every hour.

Squills is one of the most positive expectorants that we have, very seldom failing to act. It has some tendency to the kidneys. In those cases of dropsy where the secretions are locked up, and the urine is high-colored and scanty in quantity, and the skin dry, it may be given in large doses in the form of tineture, one to two drachms every hour. The tineture is made by adding eight ounces of squills to one pint of alcohol (50°). Dose, five to twenty drops. The syrup may be formed from the tineture by adding to it simple syrup.

Polygala Senega-Senega, Seneka Snakeroot.

Senega is indigenous to all parts of the United States, but is most abundant in the South and West. It gives out its virtues to water and alcohol. Its activity is thought to depend upon polygalic acid. In large doses senega is an emetic, but in small doses it is a stimulating expectorant. Like squills, it is to be prescribed only in the latter stages of acute bronchitis and pneumonia, or in chronic bronchitis and tracheitis, in small doses, to increase the secretion.

It is united with squills in the compound syrup of squills, called hive-syrup, but in croup is much better united with lobelia and sanguinaria—two parts of lobelia to one of the squills and senega. Dose, a teaspoonful every hour. I have treated a great many cases of this dangerous disease with the above mixture, and find it very successful. Senega has long been used in amenorrhoea, but it is not as positive in its action in this disease as are many other articles.

In chronic bronchitis, combined with ipecac and veratrum, it is a valuable remedy, in small doses, to check profuse secretion. The tincture is the best form for general use. It is made by adding six ounces to one pint of alcohol (50°) . Dose, five to twenty drops. The syrup may be made by adding this to an equal quantity of simple syrup.

Sanguinaria Canadensis-Blood Root, Puccoon.

Sanguinaria, in large doses, is stimulating to the mucous tissues, especially to those of the lungs, throat and stomach. It is very appropriate in bronchitis with increased secretion, and in debility of the stomach and bowels with hypersecretion. In small doses it is a good remedy in bronchitis with a dry, hacking cough. I use it a great deal, with good effect, in the latter stages of bronchitis, and always in chronic bronchitis. In croup, combined with lobelia, two parts, to one part of tincture of sanguinaria, I consider it almost a specific.

Prof. Tully considers it equal to squills, senega, guaiacum, and ammoniacum, and claims that it possesses much of the power of digitalis. In doses of ten grains it is a powerful emetic and somewhat narcotic. It should never be used as an emetic, as its local effects on the stomach are rather harsh. The powder may be given in doses of from one-fourth of a grain to one grain, every two or three hours, as required. There is no better expectorant for general use, as it never injures

digestion but improves it. The tincture may be made by adding six ounces to one pint of alcohol (76°). Dose, five to ten drops in simple syrup. The acetic syrup is also used, but it is no better than the tincture.

Sanguinarin.—Sanguinarin is the active principle of the sanguinaria canadensis. Sanguinarin, in large doses, seems to act first as a stimulant, and then as a sedative, and produces more or less diaphoresis. In toxic doses it causes violent emetocatharsis, and also has a sedative effect upon the heart. In medical doses, however, its effects are quite different. In doses of from one-fourth to half a grain it produces nausea, acts upon the liver, and if continued in large doses for several consecutive days, it is apt to irritate the mucous membrane of the whole respiratory apparatus, and not unfrequently that of the stomach and bowels.

But in proper doses, say from one-sixteenth to one-eighth of a grain, every three hours, it has an expectorant effect, and, combined with lobelin, it is almost a specific in pseudo-membraneous croup, and is of much utility in scarlatina and diphtheria, as it has a great tendency to dissolve the adventitious formations. The above combination I have used for many years in croup, and as I have never failed to check the disease in any stage with it, I regard it as a specific. It is quite a scientific combination, and the modus operandi of its action is this: The lobelin, from its specific antispasmodic properties, relaxes the stricture of the bronchial tubes, while the sanguinarin, from its specific solvent power over the pseudo-membranes, disorganizes and detaches them at once and the disease is relieved. It should be triturated, one grain to nine grains of lactin; the dose of the trituration is from one-fourth to half a grain.

Euphorbia Corollata—Flowering Spurge, Bowman's Root, Wild Ipecac.

This plant is indigenous to the United States, and blooms from June to September. It is an active emetic in large doses,

in smaller ones it is diuretic and diaphoretic, and in still smaller doses it is expectorant. In very small doses it improves digestion and overcomes constipation. It is thought to be of advantage in mucous diseases of the bowels, as dysentery and diarrhœa. As an expectorant, one or two grains may be given every two or three hours, as required. As an emetic, ten to twenty grains may be given in warm water, and repeated until it operates. For dropsy, five to eight grains may be given three or four times a day, with such other remedies as may be indicated.

The tincture is the best preparation of euphorbia corallata; it may be made by adding eight ounces to one pint of alcohol (76°). Dose five to ten drops, as an expectorant; twenty to twenty-five drops, as a diuretic; thirty to sixty drops, as an emetic.

Gillenia Trifoliata-American Ipecac.

The gillenia trifoliata, Indian physic, or American ipecac, is also indigenous to the United States, and resembles the euphorbia corallata in its properties. The dose, as an emetic, is from twenty to thirty grains; as an expectorant, two to four grains; as a tonic, one-fourth of a grain. This article has a special tendency to the liver, and a tincture may be made by adding eight ounces to one pint of alcohol (76°). The dose will be the same as that of the tincture of euphorbia corollata. This is a valuable remedy in dyspepsia and disease of the liver.

Bryonia Alba—Tetter Berry.

Bryonia was used for a long time as a drastic cathartic and as an emmenagogue, but it is rather too harsh in its action for either of the above effects, and has been laid aside by a great many physicians. The fluid extract or saturated tincture prepared from the recent root may be used with very positive success in certain forms of catarrh. Says Prof. Scudder: "During the past winter I have treated some cases in which this remedy

was a true specific. The most marked symptom indicating its use that I have noticed is a dusky flushing of the cheeks, especially over the right molar, pain in the right side of the face and head, burning in the eyes and nose, with acrid nasal discharge. The pulse is full and hard, urine scanty and bowels constipated." These symptoms often occur in catarrhal affections, as rheumatism, pneumonia, bronchitis and ordinary catarrh; and doubtless this is the remedy for such affections with the above symptoms.

Homœopathic physicians use this remedy a great deal in catarrhal affections, and they use it in small doses, yet they say they are successful with it. I have used the essential tincture of bryonia in doses of five or six drops; this is a sufficient dose of the fluid extract or of the saturated tincture in ordinary cases. A good way to give the fluid extract is to add thirty or forty drops to four ounces of water, and give a teaspoonful.

Macrotis Racemosa, Cimicifuga Racemosa— Black Cohosh, Rattle Weed.

This is indigenous to the United States, growing in woods and on rich hill-sides and flowering in June and July. It is an active stimulating tonic and increases all the secretions, especially those of the skin, kidneys and lungs. It has already been noticed and I shall now only speak of its effects upon the lungs. Dr. Hildreth, of Ohio, believes it to be a good remedy in phthisis, in combination with iodine. It influences the nervous system, and this, with its expectorant properties, makes it a valuable preparation for chronic bronchitis. It is not as active as squills or sanguinaria, but is a mild expectorant. It has a sedative effect upon the mucous surface of the lungs, and hence is very well adapted to chronic cases of bronchitis and tracheitis. It determines to the surface, which is another favorable influence in such diseases. It also acts as a tonic, improving digestion and blood-making, and hence is a good remedy in phthisis pulmonalis.

The dose of the tincture is from ten to twenty drops, as an expectorant. The tincture may be made by adding from four to six ounces of the crushed root to one pint of alcohol (96°), and macerating for ten days. This tincture may be made into a syrup by adding two parts of simple syrup to one of this tincture.

Terebinthina—Turpentine.

This term is applied to liquid or concrete vegetable juices, which consist of a combination of an essential oil, called oil of turpentine, with a resin. Two kinds of turpentine are recognized by the United States Pharmacopæia. First, the American white turpentine, procured chiefly from the pinus palustris (natural order Pinaceæ), the pine of the Southern States where it is called the long-leaved pine, yellow pine and pitch pine; turpentine is also obtained from the pinus tæda, found in Virginia, and from other species of pine. Second, the Canada turpentine (Terebinthina Canadensis), also called Canada balsam, or balsam of fir, which is the product of abies balsamæ, the American silver fir, or Balm of Gilead (natural order Pinaceæ), a tree of North America.

Many other kinds of turpentine are known in commerce, as the Barbadoes turpentine, Venice turpentine, chian turpentine, etc. The white turpentine comes from North Carolina and other Southern States. The Canada turpentine comes from Canada and Maine. It is procured from the vesicles which are found between the bark and wood of the trees and collected in a bottle. When fresh it is of the consistency of honey, but soon becomes thick by age. The turpentines yield by distillation, oil and resin.

Oleum Terebinthinæ-Oil of Turpentine.

Medical Effects and Uses.—Turpentine is chiefly employed in diseases of the various mucous membranes, as gleet, gonorrhœa, leucorrhœa, cystorrhœa, chronic bronchitis and chronic diarrhœa. It is also used by some physicians in rheumatism, and in cathartic doses in ascarides, etc. Dose: as a blennor-rhetic, in mucous diseases, from three to five drops, every three to four hours; as an anthelmintic: from half an ounce to one ounce. It is, however, dangerous in large doses, as it sometimes produces strangury, vomiting and purging, bloody or suppressed urine, unconsciousness, with dilated pupils, and sometimes death.

It is often used as a rubefacient, or counter-irritant; combined with vinegar, equal parts, with the yolks of two or three eggs to every pint, it makes a good liniment for sprains, bruises, and rheumatism. This liniment is much better than many of the patent liniments sold at such high prices by druggists. I use the oil of turpentine (spirits of turpentine), in gonorrhæa, gleet, leucorrhæa, chronic bronchitis and in the diarrhæa attending typhoid fever. I usually add one drachm of the oil of turpentine to one ounce of mucilage of gum arabic, and give one drachm every three hours. In mucous diseases of the urinary organs, I combine it with the balsams, and with tincture of cubebs.

Resina-Resin.

Resin is the residue after the distillation of the oil of turpentine. It is insoluble in water, but soluble in alcohol, ether and the essential oils, readily unites with wax and fixed oils, and forms soaps with alkalies. It is not much used internally, but is used to form plasters and ointments.

Resin cerate, also called basilicon ointment, is made by melting five parts of resin, eight parts of lard, and two parts of yellow wax together. This makes a good application to old ulcers, burns, blisters, etc.

Black plaster, or Beech's salve, is made by adding together olive oil thirty-two parts, resin two parts, beeswax three parts. Melt together, and raise the heat to a boiling point; then add, gradually, fine red lead sixteen parts; boil until the mixture turns brown, remove from the fire, and when nearly cold, add,

half an ounce of pulverized camphor. This makes a good healing salve for cuts and old ulcers that do not heal readily.

Resin plaster (emplastrum resinæ), the adhesive plaster, is made by melting one part of resin with six parts of lard. This is used to retain the parts and edges of wounds together, and is applied warm.

Pix Liquida-Pine Tar.

Tar is the impure turpentine procured from the pine wood, by burning in kilns or in furnaces where gas is manufactured. It is a brownish-black, semi-liquid, viscid substance, of an empyreumatic odor, and of a bitterish taste. It is soluble in ether, alcohol, and the volatile and fixed oils. It is composed of resin, acetic acid, oil of turpentine and other empyreumatic products. By distillation it yields oil of tar, pyroligneous acid and pitch. The oil of tar contains oil of turpentine and creosote, and some other principles.

Medical Effects and Uses.—Tar somewhat resembles turpentine in its effects, and has been used in some affections of the mucous membranes of the air tubes. Its vapor is used sometimes in chronic bronchitis. I have known the water off new tar to aid in curing chronic coughs. It is also used as a local application to tinea capitis, psoriasis, and other skin diseases. The dose for internal use is from twenty to sixty drops, four times a day. The infusion is made by boiling one pint of tar in four pints of water; dose of this, one to two ounces, every three hours. By adding one pound of sugar to the pint of the infusion, it forms the syrup of tar, which is more agreeable to take; dose, two ounces every three hours, in coughs. The ointment of tar is made by mixing equal parts of tar and melted suet. This is a good form for skin diseases, and may be spread on soft leather or cloth and applied.

Piper Methysticum-Kava-Kava.

The part used is the root. The normal tincture is prepared in the usual manner. Dose, twenty to sixty drops. This plant,

introduced from Polynesia by Parke, Davis & Co., of Detroit, Michigan, has a direct affinity for the mucous membranes, especially that of the urethra. I have used it with marked success in gonorrhea and gleet. It acts also upon the mucous membrane of the air tubes like copaiba and the other balsams.

In large doses, it acts as a stimulant, and in very large doses it produces an intoxicating effect upon the system, of a drowsy and silent character, accompanied by incoherent dreams. In doses of one or two drachms kava-kava is diuretic, producing an abundant flow of limpid urine, and it relieves painful micturition.

Copaiba-Balsam Copaiba.

Copaiba is an oleo-resin, obtained from several species of copaifera (natural order Amyridaceæ), large trees of South America. The copaifera multijuga, of Brazil, is the principal source of copaiba. Copaiba is insoluble in water, but is soluble in ether, alcohol, the volatile and the fixed oils. It is an oleo-resin, with a small percentage of acetic acid. It contains no benzoic or cinnamic acid, and is really not a balsam. By age, in air, it loses its oil.

Effects and Uses.—Copaiba, in large doses, will act as a purgative; in very large doses it produces emesis; but in medical doses it is absorbed, and passes out through the secretions and exhalations, acting on the mucous surfaces and the kidneys, and gently stimulating the circulation. It is very beneficial in many chronic inflammations of the mucous surfaces, as chronic bronchitis, leucorrhea, gonorrhea, gleet, catarrh, and irritation of the bladder. As a remedy in gonorrhea, when pure, and given after other proper treatment, it is very positive in its action. After subduing the inflammatory condition of the system with salts, gelsemium and aconite, I give copaiba, one part; nitre, four parts; tincture cubebs, two parts: dose, thirty to sixty drops, every three or four hours. The dose of copaiba is from ten to twenty drops, in capsules or emulsion, or in

lavender or cinnamon water. It should not be given in large doses.

Cubeba—Cubebs.

Cubebs is the unripe fruit of the piper cubeba (natural order Piperaceæ), a climbing, perennial plant of Java and other parts of the East Indies. Its medical properties principally reside in its oils and resin. The cubebin is inert.

Medical Properties.—In large doses, cubebs produces more or less gastro-enteric disturbance. In small doses it stimulates the stomach like black pepper; but after being absorbed, it acts as a gentle excitant to the vascular system and the mucous tissues, particularly those of the urino-genital apparatus, and sometimes acts as a diuretic. It is eliminated chiefly through the kidneys, increasing the excretion of uric acid. Given with copaiba it occasionally produces an eruption like urticaria. I have used it a great deal in cases of gonorrhea, and it may be given with antiphlogistic remedies in the early stages of the disease. In catarrh, gleet, leucorrhea and cystitis, it may be given with advantage.

The dose of the powder is from one to two drachms, three or four times a day. The oil is used, but does not represent the cubebs fully. The dose of the oil is ten to twelve drops. The oleo-resin, containing both the oil and resin, is a good representative of the cubebs. It may be given in doses of five or ten drops. The tincture may be made with alcohol, eight ounces to one pint; dose, half a drachm to one drachm, three times a day.

Thallin-Thalline.

Therapeutic Action.—Thalline $[C_9H_{10}N\ (O\ C\ H_3)]$ is employed in the form of the sulphate or tartrate. It is applicable in all febrile conditions, where an antipyretic is indicated. Dose, three to eight grains in pills. As an injection, in gonorrhœa, it is very successfully used to abort this disease during the first few days of its existence. It is also a very excellent

wash even after the disease has become chronic. It may be used for this purpose, one drachm to six or eight ounces of water. It is now conceded that gonorrhea is a specific infection, and as such, must be met by direct antiseptic remedies. The gonococcus of Neisser is the microbe that produces the disease. It is found that thalline is the antiseptic that destroys this mircobe the most readily, and the most certainly.

Matico-Matico.

Matico, already noticed with styptic astringents, is the leaves of the artanthe elongata (natural order Piperaceæ), a shrub of Peru.

Medical Uses.—Matico is a pleasant, aromatic tonic, with a specific affinity for the mucous membranes, to which it is a stimulant and alterative. As a local styptic and hæmostatic, I have already spoken of it, and now it remains to consider its peculiar local effects upon mucous membranes. As a wash in ozæna, it is very positive, and may be used of various strengths, from half an ounce to two ounces to the pint of water. As an astringent and stimulating alterative to the mucous surface, matico may be used in gleet, leucorrhæa and gonorrhæa, as an injection, in all cases where there is atony of the mucous membrane of the parts.

It is regarded as a specific in ozena and catarrh. For catarrh, it may be used in the form of infusion, say one ounce of the leaves to a pint of hot water, strained, and used with a douche. The strength may be varied to suit each case. The tincture may be used at the same time internally. The tincture may be made by covering the leaves with alcohol (50°), steeping twelve days, and then percolating. Dose, one to two drachms, three or four times a day. The dose of the powdered leaves is from twenty to sixty grains, three or four times a day. Dose of the fluid extract, twenty to thirty drops.

Lippia Mexicana.

The leaves are used. The dose of the tincture (normal tincture) of the leaves, is half a drachm to one drachm, every hour or two. This new remedy was furnished me by Parke, Davis & Co., Detroit, Mich. I find it to be a mild demulcent and expectorant, of such activity as to claim for it the commendation of the profession. In catarrhal affections, attended by harsh, dry cough, this remedy proves a great help. It quickly raises the sputa, and greatly soothes the respiratory passages. It combines active expectorant and demulcent powers, which render it a valuable remedy in bronchial and lung affections. It acts like a charm in chronic bronchitis, removing the sputa, and allaying the irritability in this very rebellious disease.

Epigæa Repens-Trailing Arbutus.

This article, being antilithic, might have been noticed under that head, but its peculiar tonic, astringent effects upon the mucous tissues, especially of the bladder, kidneys and urethra, throws it in this class of remedies. It not only possesses an especial affinity for the kidneys, like uva ursi and buchu, but it also has a special action upon the lining coats of the bladder and urethra, lessening morbid discharges from those tissues, and removing inflammatory action.

Its specific action upon the kidneys suggests it as a remedy in Bright's disease. It may be given in alternation with other remedies in gonorrhoea and gleet. It may be used also in leucorrhoea, both locally and internally, with good effect. In kidney and bladder affections, it acts like uva ursi and buchu, and can be given when these disagree with the patient. In calculous diseases, it seems to lessen the tendency to the formation of calculous material in the blood; hence, its antilithic property is rather passive than active, removing from the blood the materials likely to form calculi. The fluid extract, when made properly, and of the fresh plant, is a good preparation. The dose is one to two drachms. The strong infusion may be given

in doses of one to two ounces. The essential tincture is made by covering the leaves in alcohol (76°). Dose, one to two drachms.

Pareira Brava-Cissampelos.

Pareira brava is the root of a Brazilian plant. Dr. Biddle says: "It is probably the root of the chondodendron tomentosum, or cocculus chondodendron."

Medical Effects and Uses.—Pareira brava is a very positive remedy for irritation and chronic inflammation of the urinary organs. In chronic cystitis it is one of our best remedies, especially where there is a mucous disharge. In chronic gonorrhœa it is a mild and good tonic to the diseased mucous membrane. In leucorrhœa, with irritation of the lining of the vagina, it is a valuable remedy. Sir Benjamin Brodie says: "In chronic inflammation of the bladder I am satisfied that pareira brava has great effect, lessening the secretion of ropy mucus, and diminishing the inflammation and irritability of the bladder itself."

I have used this article in many cases, with good effect. It seems to control chronic inflammation of the urinary organs with much certainty and promptitude.

The fluid extract may be given in doses of from one to two drachms, in a wine-glass of water, every three hours. The infusion may be given in doses of one or two ounces. A saturated tincture may be made by covering the crushed root in alcohol (76°), and steeping ten days. Dose, one to two drachms, every three hours.

Barosma Crenulata-Buchu.

This is the name given to the leaves of a species of barosma (natural order Rutaceæ), a small shrub growing at the Cape of Good Hope.

Medical Properties.—Buchu has long been used as a mild

¹ Biddle's "Materia Medica," p. 296.

stimulant to the secretions, especially of the kidneys and urinary mucous membranes, with some tendency to the skin. It is employed in chronic catarrh of the bladder and urethra, nephritis, and retention and incontinence of the urine. I have frequently used the tincture or fluid extract in chronic gonorrhæa and gleet, with the most prompt success. I often combine the essential tincture of buchu with pareira brava and tincture of cubebs in the latter stage of gonorrhæa, and find this combination acts well.

In irritability of the bladder, one ounce of the fluid extract of pareira brava, one ounce of the fluid extract of buchu, one drachm of benzoic acid, half an ounce of hyoscyamus (essential tincture), given in teaspoonful doses, three or four times a day, will be found to act promptly. In that peculiar state of the digestive system, causing the formation of calculi, buchu, combined with hydrastis canadensis, seems to lessen that tendency very much; hence its reputation in curing calculous affections. The fluid extract may be used in doses of half a drachm to one drachm, every three hours. The barosmin is also used in doses of one or two grains.

Barosmin.—Barosmin is the active property of barosma crenulata. This article, like the crude buchu, or fluid extract, has a specific affinity for the urinary apparatus. It is not a very active diuretic, properly speaking; that is, it does not so powerfully augment the quantity of urine as some articles of this class; but it is sufficiently active, even in that respect, to be of much importance in the treatment of dropsy. It possesses the peculiar power of removing from the cavities superfluous fluid, by removing the liquor sanguinis, and conveying it out of the system through the kidneys, without any perturbating or injurious effect upon any part of the organization; this, it seems to me, constitutes one of its chief recommendations in the treatment of dropsy.

It seems equally effective in all forms of dropsy, such as ascites, hydrothorax, cedema, anasarca, etc. It is, however,

like all diuretics, only capable of removing the serum, which is a symptom of the disease which produces those pathological changes of the system upon which the rapid exudation of serum depends. There exists a greater or less equilibrium between endosmosis and exosmosis, and hence the accumulation. Consequently it need not be expected that a remedy that merely removes the excess of serum will cure the disease, unless it correct the morbid condition that gave rise to it.

Barosmin exerts a soothing influence over the urethra, etc. The dose is from five to twenty grains of the trituration, and one to two grains untriturated. It may be combined with other diuretics, as ampelopsin, chimaphilin, oil of juniper, etc., in dropsy. Barosmin is applicable to the treatment of many other urinary disorders besides dropsy. In ardor urinæ, caused by an irritable condition of the neck of the bladder, barosmin, combined with aconitin, atropin, or senecin, will seldom fail to give relief.

Many cases of irritable bladder, in dyspeptic subjects, are the result of excess of the solids of the urine, especially of uric acid. In such cases barosmin, combined with the acetate of potassium, will restore the equilibrium between the solids and fluids of the urine; then, if it is followed by senecin, hyoscyamin, or atropin, to allay the hyperesthesia of the mucous membranes of the bladder and urethra, it gives relief to this most annoying affection.

The peculiar soothing influence of the crude article over the mucous lining of the urinary organs has led to the idea that it possesses the power to dissolve calculi in the bladder; we do not believe that it is possessed of such power, but think the supposition originated from its use in cases of mere irritability of the bladder. As a mild diuretic the barosmin may be prescribed with confidence; where a very active effect is desired, it may be combined with chimaphilin and ampelopsin, one or two grains each, repeated every two or three hours. The fluid extract and essential tincture are both reliable and convenient, and may be given in doses of one to two drachms.

Hypericum Perforatum-St. John's Wort.

Hypericum is astringent, and has a rather soothing effect upon the nervous system, and this effect renders it a valuable remedy in chronic bronchitis. In some cases that have come under my observation it relieved the cough readily, and finally cured the disease. It is also a good remedy in hæmoptysis and other passive hæmorrhages. Its mild astringency renders it a good remedy in chronic dysentery and diarrhæa. It should be used in the form of the saturated tincture, or fluid extract. The dose of the essential tincture would be from one to two drachms. The dose of the fluid extract would be from half a drachm to one drachm, repeated every two or three hours.

Applied externally, it is valuable in various inflammations and bruises of the skin. Stewed in sweet oil or lard, it makes a very soothing application in shingles, readily relieving the burning and pain. To sprains it acts similarly to arnica, and seems to be as valuable as that article. I have used it a great deal in this way, and can positively recommend it as an external application. It grows very plentifully in the fields and fence corners all over the Southern States, and I would recommend all who know it to try it in the above conditions, as I am satisfied that they will be well repaid for their trouble.

Amygdalus Persica-Peach Tree.

A fluid extract or saturated tincture of the bark of young shoots of the peach tree, has a specific effect upon the pneumogastric nerves, allaying irritation and congestion of the mucous membrane of the stomach, and giving tone to the digestive powers. For nervous vomiting it is one of the most positive remedies we have. I have often controlled the vomiting of cholera morbus, and vomiting from irritation and congestion, with this remedy, in the form of strong infusion, taken in doses of one ounce every one or two hours. It is also a good and

very prompt remedy, united with the bark of the osier-willow or swamp dog-wood, in arresting the vomiting of pregnancy.

I use it, combined with cathartic medicines, in dysentery, to allay the irritability of the nervous system, which it does admirably. I am satisfied that it has never been appreciated. It exerts an influence upon the nervous system, and upon the circulation of mucous membranes, that is very essential in some cases of disease. The dose of the fluid extract is from twenty to thirty drops; dose of the tincture, thirty to sixty drops.

Nymphæa Odorata-White Pond Lily.

The nymphæa odorata grows in mud, where the water is from one to ten feet deep. The root is large, frequently as large as a man's arm, sending up its leaves and flowers to the surface of the water. The leaves are rather kidney-shaped, and five or six inches in diameter, and float on the surface of the water. The flowers are large, white or rose-colored, and fragrant. This plant is found in ponds, marshes and sluggish streams, flowering from June to September.

Medical Properties.— The use of this species of lily has not been much known, but deserves much more attention than it has received. It has cured cases of ulceration of the uterus after other means had failed. It should be used both locally (by injecting the infusion into the neck of the uterus), and giving the tincture per orem. P. H. Hale, M. D., has used it successfully in acrid leucorrhæa. He used it both locally and internally, which cured the leucorrhæa with surprising rapidity. There are few remedies that act more promptly than this in those cases of leucorrhæa of long standing, in which there is chronic inflammation, erosion, or abrasion of the vagina and cervix uteri.

As a local wash, where there is chronic inflammation, the extract of hamamelis, tincture of calendula and glycerine may be added to the fluid extract of the nymphæa odorata, and the latter may be also given internally. It is apparent that this

article, like hamamelis, has a specific effect upon the capillary circulation, thereby lessening the flow of blood in the parts for which it has a natural affinity. The dose of the fluid extract is ten to fifteen drops; the dose of mother tincture, fifteen to thirty drops.

Eryngium Aquaticum — Water Eryngo, Button Snake Root.

The water eryngo grows in damp places, but not in the water, and is common on prairies in the West. The root is the part used, which is of a dark brown color, very knotty; rhizoma wrinkled horizontally, the fibers of the same color. Internally it is of a yellowish white, with an odor somewhat like that of iris versicolor; a sweetish, aromatic taste, something like aralia racemosa, followed by pungency and a bitterish taste.

Medical Effects.—The eryngium has a direct affinity for the mucous membranes, especially those of the larynx, bronchi, bladder and urethra. In catarrhal inflammations of the fauces, throat, larnyx and urinary organs, this remedy exerts a directly curative effect. In epidemic influenza, not readily controlled by sticta pulmonaria and gelsemium, eryngium will be found a positive remedy. We have long needed a remedy in this very troublesome disease with which so many persons are afflicted both spring and summer.

It is also useful in mucous diarrhea and summer complaint; but its most desirable effects are to be obtained in those diseases peculiar to the genito-urinary organs. In leucorrhea and gonorrhea it has a specific curative effect. It is also a remedy in nymphomania and satyriasis, directly depressing the morbid sexual desire in a most positive manner. It is one of those remedies that may be relied on in those diseases peculiar to the mucous membranes for which it has an affinity. The dose of the fluid extract is from twenty to thirty drops; of the saturated tincture, half a drachm to one drachm.

Eryngin.—Eryngin is the essential principle of eryngium aquaticum. It is a mild diuretic, expectorant, stimulant and diaphoretic. As a diaphoretic it may be given in dropsy, combined with others of this class. It may also be given in chronic nephritis and other urinary disorders with good effect. As an expectorant it may be used in chronic bronchitis, and is much allied to senega, as an expectorant, and may be used wherever that article is indicated. It possesses stimulant properties, and as an excitant it has been used in the bites of serpents, but I would not rely on this medicine alone in such a case. It seems to have a specific affinity to mucous surfaces, and may be given in all diseases of that tissue, and will be found to exert a salutary effect in such cases.

Eryngin is a valuable remedy in gleet and the latter stage of gonorrhea, for which diseases it may be combined with oil of erigeron. In phthisis, attended with an excess of expectoration, this, combined with lycopin, will lessen the cough and the profuse expectoration. As a diuretic and stimulant, the dose is from half a grain to one grain every three hours; as an expectorant, the dose is from one-eighth to one-fourth of a grain. The fluid extract is a very convenient and reliable form, and may be given in doses of from twenty to sixty drops every three or four hours.

Erigeron Canadense—Canada Fleabane.

This article, besides its very active hæmostatic properties already noticed, possesses a kindly astringent and tonic effect upon the debilitated or relaxed mucous membranes of the urethra, in gonorrhæa, especially in its latter stages. It seems to give tone to the relaxed urethra, and arrests the inflammation. I have often used it with good effect, in the early stages, combined with copaiba and cubebs, and sometimes with gelsemium. In gleet and leucorrhæa, its astringent properties render it a valuable remedy. The dose is five to ten drops, three or four times a day. The tincture may be made by adding one drachm

of the oil to seven drachms of alcohol. The dose then would be from one to two drachms every two or three hours.

There are several species of this plant; one that grows in the Southern States, in newly-burnt woods, or in newly-cleared land, is called butter-weed, and has the flavor of erigeron. I hope some of our Southern physicians will try this species and report the result. This, like the erigeron canadense, may be made into a tincture in alcohol, by covering the freshly dried plant, steeping ten days, and pressing out the tincture. Dose, one to two drachms, every three hours. I have used the dried plant of E. Philadelphicum, in the form of infusion, as an astringent, with good effect.

Cannabis Sativa—Hemp.

Hemp is a native of India, and when grown here it does not have the same effect as the native imported article. We cannot get it fresh enough to tincture, but we can get a crude extract prepared by the natives, called *churrus*. We can make a saturated tincture of this in alcohol (76°), the dose of which is from one to five drops, every three or four hours.

Cannabis sativa exerts a very marked influence upon the reproductive apparatus. It relieves irritation of the kidneys, bladder, and especially the urethra. In the early stages of gonorrhea, small doses of cannabis combined with gelsemium will subdue the disease much sooner and more safely than the old method of ruining the digestive powers with large doses of copaiba and turpentine. This combination subdues the inflammation; then a few doses of oil of erigeron and cubebs and copaiba will soon complete the cure without any risk of injury to the stomach. There are some cases of spermatorrhea, in highly nervous subjects, in which this will be found a valuable remedy; and it will do good service, combined or alternated with pareira brava, in cases of irritable bladder. This article is also very soothing to the mucous lining of the air-tubes; hence, it is a good remedy in chronic coughs and colds.

Benzoinum-Benzoin.

Benzoin is a solid balsam, obtained from the styrax benzoin (natural order Styraceæ), a tall tree of Sumatra, Java, Borneo, and Siam. It has a fragrant odor, a feeble aromatic taste, and is soluble in ether and alcohol. It is composed of resin and benzoic acid, and hence it is placed among the balsams, which it resembles in its effects.

Medical Uses.—Benzoin is a topical irritant, and after absorption stimulates the mucous membranes, especially those of the air tubes. The tincture and compound tincture are officinal, and used in some cases of chronic bronchitis, but do not seem to be better than the balsams or liquid amber, or common sweet-gum, the product of the sweet-gum tree of this country.

Benzoic Acid.—Benzoic acid is obtained from benzoin by sublimation, or by the action of alkalies. It may be used for the tincture of benzoin, by dissolving one ounce in one pint of alcohol. Dose from ten to sixty drops, three or four times a day. It is a valuable remedy in cases of irritable bladder, with uric acid deposits, or in cases of phosphatic deposits. In its passage through the system it unites with nitrogen, thus abstracting it from urea, and then passes out of the body in the form of hippuric acid. It is one of our best remedies in uraemic poisoning of the brain. The dose is from five to ten grains.

Delphinium Staphisagria-Stavesacre.

The tincture of staphisagria has a direct effect upon the urinary organs, and especially upon the reproductive organs. It lessens irritation of the testes and strengthens their function. It also lessens irritation of the prostate gland and seminal vesicles, and thereby relieves prostatorrhæa or inflammation of these parts. It has a direct effect upon the mucous surface of the urethra, quieting irritation and checking morbid discharges, hence may be of material advantage in genorrhæa and gleet;

and doubtless it would similarly influence the mucous membrane of the vagina. It is a valuable remedy in spermatorrhea, especially in those cases of long standing, where there is despondence and depression of mind. It is also a good remedy in hysteria, where the mind is so under the morbid influence as to give rise to strange hallucinations, or violent outbursts of passion. It possesses this influence through the nervous system by a direct effect upon the brain generally. The D. consolida, or larkspur (used to destroy vermin), has similar effects upon the nervous system, but in a less marked degree.

The tincture is the best preparation for use, and may be made from the ground seed by adding eight ounces to one pint of alcohol (96°). The dose will be from one to three drops, every three hours.

Styrax-Storax.

Storax resmbles the common sweet gum of the United States, and is similar to it in its effects. It is prepared from the bark of the liquidamber orientale (natural order Styraceæ), a native of Asia Minor. It is generally adulterated. This, like the other balsams, is used for a stimulating expectorant. Its chief use is in the preparation of the compound tincture of benzoin.

Balsamum Peruvianum-Balsam of Peru.

This is the product of the myrospermum Peruiferum (natural order Leguminosæ), a tree of Central America. It contains a resin, an essential oil, and cinnamic acid. The balsam of Peru is a stimulating tonic blennorrhetic, used with good effect in chronic coughs. It is much used, where it is obtained, in gonorrhea and leucorrhea. The dose is from twenty to thirty drops.

Balsamum Tolutanum—Balsam of Tolu.

This is obtained from the myrospermum toluiferum (natural order Leguminosæ), a tree which grows near Carthagena,

and is much used there. Balsam of tolu is a good blennorrhetic, very valuable in chronic coughs, and much used to flavor other expectorants. The dose is ten to twenty drops, in emulsion. The tincture is made by adding three ounces to two pints of alcohol; the syrup, by adding two ounces of the tincture to one pint of simple syrup. It is chiefly used for cough mixtures, but is only palliative.

Prunus Virginiana-Wild Cherry.

This is an old remedy, but the preparations that have been used are feeble, as it has been employed chiefly in the form of infusion, or an extract made by heat; and hence, the medical virtues, which are volatile, are evaporated. An aqueous extract may be made by putting up alternate layers of the green bark, crushed, and sugar, about an inch in thickness, to fill a vessel, then covering in water. Let this stand some six or eight days, then percolate off the clear syrupy extract, and it will contain the virtues of the bark. Or a saturated tincture may be made by covering the fresh bark, crushed, in alcohol (60°), steeping ten or twelve days, and then percolating. The dose of either of the above preparations will be from one to two drachms every two or three hours.

Thus prepared, it possesses mild tonic powers, and directly allays irritation of the mucous membranes, especially of the air passages. In chronic bronchitis and phthisis pulmonalis it is excellent to allay the excessive cough, and at the same time to tone up the feeble vitality of the whole system. It has done good service in my hands. In chronic bronchitis, wild cherry, combined with the fluid extracts of ptelea and euonymus, has been very efficient in allaying the cough and keeping up the powers of digestion and assimilation. It allays the cough in phthisis, and answers as an excipient for other remedies in this disease.

Prunin.—Prunin is the active principle of the prunus virginiana. Prunin, when manufactured without heat, is a valua-

ble remedy in the treatment of pulmonary diseases. In phthisis pulmonalis, this is a remedy of much value. Its sedative action upon the excited pulmonary circulation renders it an available remedy in all diseases of the lungs and air-passages. Its sedative effects overcome the irritation, and thereby remove the congestion, and it thus subdues any inflammatory excitement of the lungs, etc. It is also a direct tonic to the pulmonary tissue, imparting energy to it, and thus prevents the effusion of tuberculous matter into the lung structure.

In phthisis pulmonalis, the prunin may be combined with hypophosphite of soda as follows: Take ten grains of prunin and triturate it with ninety grains of lactin, then add twenty grains of hypophosphite of soda, and add four ounces simple syrup, to which add ten drops of prussic acid. Dose, one or two drachms, three times a day.

The above remedy will be found most soothing to the irritated pulmonary apparatus, acting specifically upon the bronchial mucous membrane. In that peculiar nervous prostration that follows typhoidal fevers, this is one of our best tonics. The usual dose is from one-tenth of a grain to one grain, every three or four hours. It is best in the form of a trituration.

Eriodictyon Glutinosum-Yerba Santa.

Yerba santa, holy herb, was introduced to the profession recently by Dr. Bundy, of Colusa, Cal., as a superior lung remedy. He used it with success in laryngitis, laryngo-bronchitis and hæmorrhoids. He also says that it has considerable influence over the kidneys, bladder and prostate gland. He says: "Mr. D., who had been suffering for many years with an affection of the kidneys and bladder, came to me for treatment, and although he had been treated by several physicians as well as myself prior to this time, he had realized but little help from any one. His symptoms were pain in the small of the back, sometimes on one side, sometimes on the other, then on both sides at the same time, which would pass down to the testicles,

causing retraction of the cords. Often there was great difficulty in urination, and the urine would be thick and ropy, sometimes clear, at other times milky, and never without pain in the bladder. I prescribed the yerba santa, and the case is progressing finely, and the patient has experienced more benefit from it than from all the other remedies he has tried."

It is also recommended in rheumatism. Dr. Bundy says that it acts better for him in rheumatism than anything he has used. He says: "In laryngitis it stands unrivaled." Colds and coughs are cured by it, The dose of the saturated tincture is thirty drops, three or four times a day, in syrup or sweetened water.

Drosera Rotundifolia-Sundew.

The German tincture of this plant and the fluid extract are reliable, and may be given in small doses. The dose of the fluid extract is from three to five drops, every two or three hours. The dose of the German mother tincture, or the saturated tincture, is from five to ten drops. Prof. Scudder recommends it in the cough attending measles, especially in those cases attended with dryness of the throat. He also says that it is beneficial in cases of whooping-cough attended with dryness of the air passages and much irritability of the nervous system, often observed in nervous children. It is also a valuable remedy in chronic catarrh, and in chronic bronchitis, attended with dryness of the mucous membranes and an irritable state of the nervous system.

It seems to have a direct effect upon that portion of the pneumogastric nerves that supplies the respiratory apparatus, and hence it is a valuable remedy in the early stage of phthisis, where there is a dryness of the mucous membranes, with hacking and harassing cough but without expectoration. In such cases it will be found to quiet the irritability and lessen the frequency of the cough, which is a matter very important to the patient, as he now requires rest, to prevent debility. Those

who can get it fresh may make a saturated tincture by covering the fresh plant in alcohol.

Grindelia Robusta-Hardy Grindelia.

This is another plant lately introduced to the profession from California. It is an herbaceous plant, perennial (natural order Compositæ). It is a slender, smooth plant, from one to two feet high, with a few short branches near the top. The leaves are oblong-spathulate, alternate, sessile, and remotely toothed. Each plant has from one to four globular radiate heads. The involucre consists of numerous imbricated scales, covered with a balsamic resin. The ray flowers are xanthic.

The dried plant is nearly inert, hence a fluid extract of the fresh herb, or a saturated tincture of the fresh plant, recently imported, should be used. The flower heads abound in a peculiar balsamic resin, which gives the plant an odor resembling sweet marjoram or summer savory. The medical virtues principally reside in this resin.

Medical Uses.—Grindelia is remarkably demulcent, relieving irritated surfaces very promptly. It is represented to be one of our best remedies for old irritable sores, for which it may be used internally in the form of the fluid extract or essential tincture, in doses of thirty drops, three or four times a day; a mixture of the fluid extract one part, and glycerine three parts, being applied to the sore.

It is a valuable remedy for gleet, gonorrhea, and mucous diseases generally, soothing the irritation and lessening inflammation. It rapidly promotes reparative action in indolent ulcers. It is also a remedy in asthma. It is worthy of a more extended trial, and will repay study.

Dr. Henry M. Fiske reports the grindelia as a remedy for the poison of rhus toxicodendron; and also as the remedy par excellence for asthma. He says too that it is a superior remedy for iritis, no matter from what cause it may originate, whether from gout, rheumatism, scrofula or violence, acting specifically

upon the diseased iris. He say: "Mr. C., aged thirty-five, applied to me for treatment. His right eye was much swollen and protruding, the iris very much contracted and irregular on its edges. There was intense pain through the whole ball of the eve. The conjunctive was very red and its blood vessels distended. The lids were swollen and tinged. He had been in poor health for some time, but had followed his usual avocation. I applied leeches, put him on mercury, and employed the usual cooling lotions to the organ. This course was thoroughly followed for several days, with no appreciable benefit. He could not rest without an opiate. The case was anything but a promising one. As he sat in my office complaining of the heat and pain, begging me to do something to give him relief, I thought of the grindelia, some of which was on the table before me. I soaked some thin cloths in a mixture of one tablespoonful of Steel's fluid extract to four of water, and applied, with directions to keep them wet. There was marked amelioration in a few hours. In the morning, for an old asthmatic difficulty with which he suffered, I gave him some of the fluid extract of grindelia, with directions to take a tablespoonful four times a day. In thirty-six hours the patient was convalescent from both troubles." It is represented as a very positive remedy in uterine catarrh and catarrh of the urinary organs; also, for burns, scalds, etc.

Petroleum-Mecca Oil.

The Mecca oil is the heavy petroleum or coal oil, and is the only one that has been much used as a medicine. It has undoubted influence over the bronchial mucous surface. Prof. Wm. Paine, of Philadelphia, introduced it to the notice of the profession, and induced me to try it in chronic bronchitis. I found it very valuable in several cases. It is also a good remedy in laryngitis where there is great irritability. It is represented as being alterative in scrofula and some chronic skin diseases, as eczema, and others of a like character.

In skin diseases it may be applied locally and given internally. Its dose is from thirty to sixty drops, repeated every three or four hours. It may be alternated, in skin diseases, with juglans cinerea or rumex crispus. In chronic bronchial diseases, it may be alternated with such other remedies as may be required in each individual case. It is not an expectorant, and where the sputa is tough and hard to detach, it may be alternated with senega and sanguinaria. The Mecca oil is an alterative to the mucous surface of the bronchial tubes, and seems to allay the cough, and lessen the turgescence of the mucous surface, thus aiding in a radical cure of the disease.

CHAPTER XIII.

Cathartics—Purgatives.

CATHARTICS (from the Greek word kathairo, I purge), or purgatives, are such medicines as increase the secretion from the internal surface of the intestines and promote the expulsive power of the bowels. The increase of secretion is eliminative and the increase of peristaltic motion is an accompaniment of it. Some few articles of this class promote only the peristaltic movement without the increase of secretion. The use of this class of eliminatives is very important in the healing art, and is too extensive to be fully discussed in this concise essay.

The fæces consist of the imperfectly digested residuum of the food, and the secretion which is poured out of the inner surface of the bowels. According to Marcet and Berzelius, and some others, the secretion of the bowels contains mucus, salts, albuminous matters in a state of change, or undergoing decomposition, and a crystalline material called excretine—the analogue of urea.

Whatever notion may be entertained by practitioners as to the physiological purpose of this secretion, they all agree that it is often deficient, and adopt means to restore it to a healthy state. It is a function that can generally be easily increased, and this arises from the fact that the inner surface of the bowels is studded with glands, so that this forms the largest secreting surface in the whole body. This secreting surface, it is estimated, covers a space of fourteen hundred square inches.

Now, by the action of cathartics, we can eliminate from

this large surface, and if the action is violent it produces a great outpouring of the fluid part of the blood. Whenever this secretion is suspended or retarded, we can thus restore it to its normal state, and in some cases where other secretions are suppressed, we may substitute this for them until we can restore the normal secretions. In diseases attended with plethoric or inflammatory disorders or conditions, cathartics afford us the direct means of reducing such a condition of the system, for cathartics act promptly.

Many remedies act simply by an irritation of the mucous coat of the bowels, exciting thereby the peristaltic contraction of the bowels, and they may also even increase the secretion of the mucous surface by a reflex nervous action. All substances taken into the stomach, and not well digested, are pushed onwards along the bowels and by their accumulation excite contraction, and thus operate to a greater or less degree as indirect purgatives. Of this character is the ligneous fiber of many vegetables, the rind and pulp of fruits, the husk of wheat and other grains, rendering them laxative to the bowels; but they are injurious to the stomachs of dyspeptics.

The resinous cathartics, scammony, aloes and gamboge, which, though capable of absorption, seem to act in some cases by their mere irritation upon the intestinal mucous surface, still appear to become sufficiently absorbed as to bring about elimination from the system, both by direct and indirect action.

The true cathartics act, no matter what part of the system they may enter. If a fine solution be injected into a vein, or absorbed from the surface of the skin, it passes at length to the intestinal canal and is excreted by the glands of the mucous surface, and causes a purgative effect by augmenting the natural secretion of the bowels; and if taken by the stomach, it is absorbed and passes along in the circulation, but being unnatural to the blood, it is expelled by the eliminative power of the bowels, and at that part which is more active in excretion than absorption.

These remedies are often administered to excess under the very erroneous idea that they do good simply by removing some imaginary irritating materials from the intestines. Flaming advertisements of patent pill-mongers attract the attention of the victims of an overloaded stomach, and they purchase box after box of some harsh cathartic, under the hallucination that there are vast quantities of offending materials in the bowels that must be removed by powerful purgation.

When there are crude materials in the bowels, cathartics not only remove them, but in many cases they remove foreign matter from the blood; of this fact we have many evidences. Solutions of jalap, gamboge, rhubarb, and some other articles of this class, will purge when introduced into the blood at any part of the system. Even the fine dust diffused in the air from hellebore or colocynth while it is being pounded, has been known to purge. The solution of the sulphate of magnesia, when injected into the veins of an animal, has been known to purge as soon as it came in contact with the bowels. This certainly shows the specific affinity of medicines for certain parts of the system.

Cathartics may be divided into three groups: First: podophyllum, euonymus and the sulphate of manganese, being also cholagogue, are especially indicated in cases where, in addition to torpidity of the bowels, there is inaction of the liver. In the second group the great majority of active cathartics may be included. They vary a great deal in the intensity of their action. Some of them are so mild that they may be administered in fevers, inflammations, pregnancy, and wherever such articles are demanded. But some others are very drastic and powerful, and may cause inflammation of the bowels, and hence should be avoided generally.

Most of the resinous cathartics are, as a rule, more or less heating, and are contra-indicated in fevers. The resins of jalap and podophyllum are active cathartics, yet, in medical doses, they are mild enough for adults; scammony, colocynth, and gamboge, are more drastic, and should never be given in large doses. Olive oil is merely laxative, and very well adapted for children; castor oil is a mild, certain cathartic, devoid of danger, but very oppressive to the stomach, and exceedingly disgusting to the taste; croton oil is a dangerous hydragogue cathartic, and should never be given except in extreme cases of constipation, after milder remedies have failed.

Rhubarb, aloes, and senna are generally mild in operation. Senna, alone, is somewhat irritating with some peculiar constitutions. Aloes acts directly on the rectum, and is dangerous in pregnancy and where there is any tendency to flux or piles. Many cases of piles have been produced by patent pills and bitters containing aloes. Hellebore is a powerful drastic and dangerous cathartic, and seldom used. Elaterium is the most potent cathartic in the materia medica, but is so harsh that it is seldom used except in extreme cases of dropsy. In dropsy, one-twelfth of a grain will produce copious catharsis.

Salines, that is, salts made from the alkaline and earthy metals, are cathartics when given under certain circumstances. But sometimes they pass off through the skin and kidneys. The size of the dose generally determines the action of saline cathartics; if large, and in a quantity of fluid, it produces a purgative effect, but if the dose be small, it may pass out by the kidneys as a diuretic. The salines are hydragogue in their action. They act thus from their very great affinity for water; they unite with the aqueous part of the blood, and thus convey it out of the body, hence their utility in dropsy.

Salines are also cooling to the system, and are applicable in fevers and inflammation, as they are quite mild in action. There are a great many diseases, in which the bowels are deranged, and their functions interrupted, hence the necessity of this class of remedies. It is now understood that much of the effete or worn-out tissue of our constantly changing organism is eliminated through the glands of the body; hence, the judicious use of cathartic medicines is often absolutely necessary.

Then, in many diseases the peristaltic motion of the bowels is arrested, and purgatives are required to restore it at once.

I. LAXATIVES.

Laxatives are the mildest class of evacuants, and are of special use in habitual constipation. Many ripe and dried fruits, boiled and eaten—as peaches, apples, tamarinds, raisins, figs, prunes, and dried pears, produce a laxative effect upon the bowels.

Rhamnus Purshiana—Cascara Sagrada, American Buckthorn.

The fresh bark of the root is the part used. The tincture, made with 60 per cent. alcohol, and the fluid extract, are the chief preparations. The dose is from half a drachm to one drachm any time the bowels are constipated. I have found this the remedy par excellence in habitual constipation. I have used it much for several years, in the form of a fluid extract, with aromatics, to render it agreeable to the taste, and to prevent griping. It resembles the R. frangula in its action, but is much milder and less likely to produce tormina and tenesmus. Equal parts of the fluid extracts of senna leaves, and this article, make a very certain and mild aperient, in small doses, or a cathartic in larger doses.

All the species of this plant are cathartic, and leave the contents of the bowels in a soluble condition, but this variety is the mildest in action, and is, consequently, likely to supersede all the other varieties. This is a favorite remedy with me in constipation, piles therefrom, and, with nux vomica, and ipecac, a valuable compound in indigestion. When given in small doses, say ten to fifteen drops three times a day, with two to five drops of nux vomica, it tones up the stomach and liver nicely. Combined with podophyllin, euonymin, colocynthin, and aloin, it makes an active liver and cathartic pill. When taken in the form of a two grain pill, it acts gently, once or twice, producing bilious stools, and leaving the bowels open.

Manna-Manna.

Manna is the saccharine exudation of the fraxinus ornus, and the fraxinus rotundifolia (natural order Oleaceæ); small trees of Sicily and Italy.

The flake manna is the best variety. In large doses, manna is a mild laxative. It is a good remedy for little children, much better than castor oil, which has ruined the digestion of thousands of little children in this country. It may be given in doses of one or two drachms, dissolved in warm milk or water. It is combined with senna, in the form of the compound syrup of senna and manna, and is then a good cathartic for pregnant women, or those who are confined. It is also a good laxative for persons that are subject to constipation, and much milder than many other purgatives in common use for that purpose. It is not active enough for those who have taken drastic pills until they have blunted the susceptibility of the bowels.

Cassia Fistula-Purging Cassia.

Cassia is the fruit of cassia fistula (natural order Fabaceæ); a large tree of Egypt and the East Indies: also naturalized in the West Indies and South America. The pulp of the seedpod is the part used; it is of a sweet taste.

Cassia, in small doses, is a mild and pleasant laxative, and may be used where such articles are required. It is one of the ingredients in the confection of senna. Dose, one drachm to one ounce.

Oleum Olivæ-Olive Oil.

This is an oil obtained from the olive, the olea eupatoræa (natural order Oleaceæ), which is now cultivated in various countries for the oil as an article of commerce, and use as a salad oil. Olive oil is one of the mildest laxatives we have, and well adapted for little children. It is much adulterated at present with lard oil and on that account is not so much used; if it can be obtained pure it is a very mild laxative, and

at the same time nutritious. It ought to be used with little children where castor oil is now used, as it is much milder in action and much less injurious to the stomach. It is a good article for an enema by rubbing up one or two ounces with the yolk of an egg and adding water. The dose is from one to two ounces.

Oleum Ricini-Castor Oil.

Castor oil is the fixed oil obtained from the seed of the ricinus communis, or palma christi (natural order Euphorbiaceæ), a small perennial tree of India, but now naturalized in many warm climates, and cultivated in the United States, where it is an annual plant, from five to six feet high. The seed is about the size of an ordinary bean, and full of oil.

Medical Uses.—Castor oil, though very nauseous to the taste, is a mild and tolerably certain laxative. When it is pure it operates without griping; but if made by applying heat, it soon becomes rancid, then it is apt to gripe. It produces copious evacuations of the bowels, but is very oppressive to the digestive powers. It is well adapted to dysentery, in its incipiency, to clear the alimentary canal, in the form of an emulsion, which is made as follows: Castor oil, one ounce; spirits turpentine, two drachms; spirits lavender, two drachms; bicarbonate soda, one drachm; tincture tolu, one drachm; tincture camphor, half an ounce; gum arabic, four drachms. Mix well, and give a tablespoonful every three hours, until it operates well on the bowels, then a teaspoonful, every three hours, to keep up a gentle action. If alternated with tincture of gelsemium, it will often check dysentery in a few days. Castor oil may be given in doses of from half an ounce to one ounce, in mint water.

Gillenia Trifoliata—American Ipecac, Indian Physic, Bowman's Root.

Gillenia trifoliata is a perennial-rooted plant, with annual stalk, some two or three feet high, with trifoliate leaves, which

are lanceolate, serrate and unequal; the lower leaves are obtuse. Flowers are white or rose-red, and are on loose panicles, with five lanceolate, narrow petals, somewhat obtuse. It is indigenous to the United States, and is found in hilly woods from Canada to Florida, in light, gravelly soil. It flowers from May to June. It was used by the Indians as an emetic.

Medical Properties.—While gillenia is an emetic, in large doses, it is also a very mild and efficient cathartic in smaller doses. It thoroughly clears the alimentary canal of all accumulated matter. It acts also as an efficient tonic and cholagogue. As a cathartic, in doses of ten to fifteen grains, it is very certain and yet mild in its action. In cases of dyspepsia, complicated, as is usually the case, with constipation, it is one of our best cholagogue cathartics, as it improves the digestive powers and also removes the accumulated fæces from the bowels.

The strong infusion or fluid extract, in suitable doses, will perhaps act better as a cathartic than the powder. This article has not received that attention that it deserves. The saturated tincture is perhaps the best form to procure its tonic effects; this may be made by adding eight ounces to one pint of alcohol (60°). Dose, ten to thirty drops, Dose of the fluid extract, from ten to twenty drops.

Sulphur Sublimatum-Sublimed Sulphur.

Sulphur, in small doses, repeated every four or six hours, is a gentle diaphoretic, and a gentle stimulant to the mucous membranes. But in larger doses, it acts as a mild aperient. It is not liable to gripe, and is very applicable where a mild aperient is required, as in hæmorrhoids or in pregnancy. It is also employed in some skin diseases, as itch, for which it is a very positive remedy. It is often employed in rheumatism as a mild diaphoretic, but is a feeble remedy. As a mild expectorant, it is a good remedy in chronic bronchitis in small doses. As a mild laxative in hæmorrhoids, it is often combined with cream of tartar, as follows: Sublimed sulphur, one and one-

half ounces; anise seed, pulverised, half an ounce; cream of tartar, one ounce: Mix well. Dose, one or two drachms every three or four hours. If this does not prove sufficiently active, one ounce of senna leaves, powdered, may be added to the above quantity. This is a good cathartic for children, or for females in confinement. It is also a good cathartic in cases of asthma, and is supposed to have some influence over the disease. The ordinary dose of sulphur is from one to two drachms.

The lac sulphur—milk of sulphur—is a lighter colored preparation, and is used in the same doses, and for the same purposes. Patients should not expose themselves while taking sulphur.

II. SALINE CATHARTICS.

Magnesia-Calcined Magnesia.

Husband's or Henry's Calcined Magnesia is an antacid laxative, and has the best effect on those who are troubled with an excess of acid in the stomach. If taken too long, or in too large quantities, it is liable to accumulate in the intestines, and hence it is best to give it in lemonade.

This is a very mild and beneficial laxative for dyspeptics, and for infants. It is a good remedy for pregnant females who are troubled with constipation and acidity of the stomach; and if combined with pulverised columbo and hydrastis, it is still better for acidity of the stomach. It has long been a favorite remedy in heartburn and sick headache. It may be given in doses of one or two drachms, and repeated every four hours until it operates.

Magnesii Carbonas-Carbonate of Magnesium.

The carbonate is used in the same doses, and under the same conditions as the calcined magnesia, but is so liable to produce flatulence that it is objectionable, and not much used now.

Magnesii Citras-Citrate of Magnesium.

The citrate of magnesia, in solution, is a very pleasant cathartic, and much used instead of Epsom salts. It is a good cathartic in the forming stage of fevers and dysentery, and also where the bowels are irritable, and will not admit of a more active cathartic. It is a cooling cathartic, and devoid of all objections. Dose, from two to four ounces every three hours until it operates.

Magnesii Sulphas-Sulphate of Magnesium, Epsom Salts.

Epsom salts, first procured from the Epsom springs in the south of England, is also a constituent of sea water and many saline springs. It is now manufactured at Baltimore.

Effects and Uses.—Epsom salts is a mild and safe refrigerant purgative of the hydragogue character, and being very cheap, is more used by the people than any other purgative; but it should not be given too long, nor in cases of great debility. It is very suitable in cases where, from a certain phlogotic condition, the patient has boils and pimples. It is a good cathartic in the early stage of remittent or intermittent fevers, to clear the alimentary canal. I have often used it with good effect in inflammatory dysentery. It seems to lessen inflammation of the mucous membranes, especially of the lower bowels. It is a hydragogue cathartic, and by its hydragogue action lessens the tendency to cedema and dropsy.

It may be combined with the infusion of senna: it then makes a very active cathartic. In doses of one or two grains it is a very good diuretic, and may be repeated every two hours; and if given thus, it is also a good remedy in irritability of the bladder and strangury. The dose of Epsom salts, as a cathartic, is from half an ounce to one ounce, and this dose may be repeated in three hours if it fail to purge. It should be given in solution.

Sodii Sulphas-Sulphate of Sodium, Glauber Salts.

This salt is also a constituent of many mineral springs. It occurs, as a residuum, in the manufacture of muriatic acid, and is also made by adding sulphuric acid to chloride of sodium or common salt.

Medical Effects and Uses.—Sulphate of sodium acts very similarly to the Epsom salts, but is more bitter and nauseous to the taste. It has, in addition to its purgative effect, an antiplastic action on the blood, and as a cathartic in dysentery is superior to Epsom salts. I have used Beach's liquid physic, which is a combination of alum, Glauber salts, sulphuric acid and water (see King's Dispensatory), with good effect in many cases of dysentery.

Glauber salts, in small doses, say one or two grains, like Epsom salts, acts as a mild diuretic and allays irritation of the urinary channels, and like other salines, is antiphlogistic in its effects. It acts with great promptitude, but in over-doses, which are very often given, it acts rather harshly, producing more or less griping, which may be counteracted by administering it in ginger tea. The ordinary dose is from half an ounce to one ounce every three hours until it operates. The administration of sulphate of sodium should not be continued too long, as it, like Epsom salts, is liable to produce debility by removing too much serum from the blood.

Mangani. Sulphas-Sulphate of Manganese.

This salt consists of one equivalent of sulphuric acid and of protoxide of manganese (Mn S $O_4 + 4 H_2 O$). It occurs in the form of rhombic, prismatic crystals, of a pale rose color, transparent, and of a bitter, rather astringent taste; which are very soluble in water.

This is a hydragogue cathartic in large doses, acting in a similar manner to Glauber salts, but at the same time acting very freely on the secretory function of the liver. It is a true cholagogue cathartic.

In a private letter to me, just received, from Dr. J. H. Wright, of Van Buren, Ark., he says:

"Regarding my experiments with the sulphate of manganese, I come to the following conclusions:

"1st. As an adjuvant to iron under all circumstances of anæmia—a preponderance of white elements—a deficiency of protein elements, any dyscrasy, no matter how produced, or whether acquired or inherited—the sulphate of manganese is indispensable.

"2d. In instances of a condition under which the system at large is unable to resume a healthy action, especially in cases of long standing, and such as have been heavily impressed with malarial poisons, and that have doubtless been long under mercurial treatment without good result, I order sulphate of manganese, one drachm; cold water, one pint; to be taken during the night, the patient to remain in bed until breakfast time; then eat as usual. He may feel like vomiting before eating, but must refrain, if possible. The second night repeat the dose, and the same on the third. He will certainly vomit the third morning, possibly the second, rarely the first. The bowels will be heavily moved, and the curtains which had been darkening the soul of the patient will be withdrawn, and he will again feel a fresh life and vigor coming in through his veins. Once, in many times, it may be necessary to repeat this treatment in seven to ten days.

"In all cases of protracted convalescence from fever, especially of malarious form, or in instances of mercurial poisoning, and in all cases where I wish to combine iron, I use sulphate of manganese and sulphate of iron, of each one drachm, pulverized; add nitric acid, one drachm; triturate during effervescence, and add water, eight ounces; filter, and direct for a dose a teaspoonful in a glass of water, two hours before or after each meal."

Dr. Wright also says that it powerfully promotes all glandular action, as well as that of the liver. I would recommend all physicians to use this in the place of mercurials, and I am certain it would be much better for their patients and equally so for the physician. It acts very freely on the secretory function of the liver, for which it may be given in five to twenty grain doses.

Sodii Phosphas—Phosphate of Sodium.

This salt is prepared by digesting burnt bones with diluted sulphuric acid, and decomposing the resulting superphosphate of calcium with carbonate of sodium. It is in large, rhombic, colorless, transparent crystals (Na₂HPO₄,12H₂O), very soluble in water, and has a pleasant saline taste, resembling common salt.

Medical Effects and Uses.—Phosphate of sodium is a very mild and pleasant cathartic, and from its rather agreeable taste, it is well suited to the treatment of delicate persons and children. It is, however, rather expensive for general use, especially where the patient does not pay his doctor's bills. As it is a constituent of the blood, it is recommended in cholera, as a restorative of deficient saline matters in the blood, and also in such diseases as are characterized by a deficiency of the phosphates in the bones, known by the curvature of the bones of the limbs, etc. This remedy is very often of much advantage in the treatment of children that are rickety in constitution, this condition consisting of a deficiency of the phosphates in the blood, originating either from too much animal diet or from deficiency of assimilation. It may be given in doses of from twenty to thirty grains, three times a day. The purgative dose is from half an ounce to one ounce. As an alterative, twenty to forty grains may be given.

Potassii Bitartras—Bitartrate of Potassium, Cream of Tartar.

This salt exists in grapes and other vegetables. It is deposited in an impure form on the sides of wine casks, in the form of reddish-colored crystals, called *argol*, which is purified

by solution and recrystallization; it then forms the white, crystallized mass, termed cream of tartar (KHC₄H₄O₆). It is slightly soluble in water, not soluble in alcohol, and has an acid taste.

Medical Uses.—In large doses, cream of tartar is a mild and pleasant purge, but in excessive doses it is liable to produce gastro-intestinal irritation, and even inflammation. It is hydragogue in its action, and much employed, with jalap or podophyllum, in dropsy. The dose is from one to two drachms, as an aperient; and from half an ounce to two ounces as a cathartic.

In doses of twenty to sixty grains it acts as a diuretic, and is frequently given with other diuretics in dropsy, where its cathartic action is deemed impracticable. I have used it a great deal in dysentery, combined with ipecacuanha and gelsemium, or with camphor and opium. In this disease it not only acts as a mild cathartic, unloading the bowels, but its hydragogue effects drain the blood and lessen the inflammation. It should be given in small doses for this purpose, and repeated every three hours, to keep up the action upon the exhalants; thus it lessens the water in the blood.

Potassii Sulphas—Sulphate of Potassium.

This salt is obtained artificially from the residuum of the distillation of nitric acid from nitrate of potassium and sulphuric acid. It is in small, hard, colorless, inodorous crystals (K_2SO_4), of a saline, bitter taste. It is soluble in water, but not in alcohol.

Medical Uses.—It is cathartic in small, but poisonous in large doses. It is thought to act as a lactifuge, or a represser of milk. The dose, as a cathartic, is fifteen to sixty grains. It is not much used as such in this country.

The chief use made of this salt is to triturate it with opium to make Dover's powder. This is made by rubbing up sixty grains each of opium and ipecacuanha, with a troy ounce of sulphate of potassium; ten grains of this mixture containing one grain each of opium and ipecacuanha. Dose, from five to ten grains.

Potassii et Sodii Tartras—Tartrate of Potassium and Sodium, Rochelle Salt.

This is the Rochelle salt (KNaC₄H₄O₆, 4H₂O), and may be made by saturating the excess of acid in cream of tartar with the carbonate of sodium. It is soluble in water.

Medical Properties.—This is a mild and very pleasant cathartic, and well suited to persons subject to excess of uric acid in the urine; but, as it renders the urine alkaline, it is not suited to those who are laboring under excess of the phosphates. Dose, half an ounce to one ounce.

It is used in seidlitz powders. The blue paper contains two drachms of tartrate of potassium and sodium and forty grains of bicarbonate of sodium; the white paper contains thirtyfive grains of tartaric acid.

III. MILD ACRID CATHARTICS.

Rheum-Rhubarb.

The rhubarb is the root of rheum palmatum, and of other species of rheum (natural order Polygonaceæ). It is generally supposed that rheum palmatum yields the best rhubarb; it grows in Chinese Tartary and Mongolia. The R. officinale, imported from Canton, is the variety most commonly used in this country.

Medical Effects and Uses.—Rhubarb is a very excellent cathartic, when given with an alkali and an aromatic, to correct its tendency to gripe. It does not produce nausea or debility like many other articles of this class, but seems to tone up the digestive organs. There is an astringent principle in it that renders it a valuable remedy for diarrhæa, for which the compound syrup is used, and is much the best. It is made of one pound of crushed rhubarb, one-fourth of a pound of cinnamon,

and one-fourth of a pound of hydrastis added to one gallon of brandy or proof spirits; steep three days, and strain off the clear tincture: then add one pound of mint to the powders, put in one gallon of water, and boil slowly until the fluid is reduced to half a gallon; strain, and add one pound of bicarbonate of potassium; melt, and add the reserved tincture; and to that add six pounds of sugar; melt. The dose is one to two drachms, as a stomach tonic, and an astringent in diarrhœa; it may be repeated every three or four hours.

The compound syrup of rhubarb and potassium is one of our most positive remedies for diarrhæa, and in doses of one or two ounces, it is a mild laxative, very well adapted to children and pregnant women, or for dyspeptics. Where an active cathartic is desired, one grain of podophyllin may be added to four ounces of the compound syrup of rhubarb.

The compound powder of rhubarb may be made by mixing one pound of pulverized rhubarb with one pound of bicarbonate of potassium, one-fourth of a pound of hydrastis, and the same quantity of pulverized mint; mixed well in a mortar. The dose of this as a cathartic, is from forty to sixty grains; as an astringent in diarrhæa, one or two grains may be given every three hours. This makes a most excellent cathartic for dyspeptics, clearing the alimentary canal, and improving the digestive powers. This is a favorite cathartic with me, and the more I use it, the more I am impressed with its superior claims on the profession. It leaves the stomach and bowels in a healthy condition, imparting tone to the digestive apparatus.

The essential tincture may be made by adding eight ounces of crushed rhubarb to one pint of alcohol (50°), steeping ten days, and straining; the doses will be from five to ten drops as an astringent, and half a drachm to one drachm as a cathartic. This is a very convenient form for general use.

The fluid extract of rhubarb is a mild and pleasant laxative, in doses of from twenty to thirty drops, well diluted with mint water.

The tincture of rhubarb and senna is made by adding one ouncé of rhubarb, one hundred and twenty grains of senna, sixty grains each of coriander seed and fennel seed, to two pints of diluted alcohol. Steep ten days and strain. Dose, one to two drachms as often as required.

The tincture of rhubarb and aloes is now seldom used. It may be made by adding an ounce of rhubarb and half an ounce of aloes to one pint of diluted alcohol; the dose will be from two to three drachms.

Rhubarb pills may be made by mixing seventy-two grains of rhubarb with twenty-four grains of soap, with enough water to form it into a pill mass; make into twenty-four pills. Dose, two to four pills.

Compound pills of rhubarb may be made by mixing fortyeight grains of rhubarb with thirty grains of aloes and ten grains of podophyllin; add ten drops of oil of peppermint; form into forty-eight pills. Dose, one to three pills. The above pill is superior to Cook's pills, as they may be taken without danger, which is not the case with Cook's pills.

Rhubarb and magnesia is an old and favorite preparation, but is inferior to rhubarb and potassium or sodium. In summer complaint of children and cholera morbus, the syrup of rhubarb and potassium is a superior remedy. I seldom give anything else.

Juglans Cinerea—Butternut, White Walnut.

The juglans cinerea is inferior in size to the black walnut. It grows near streams in the alluvial soil in many parts of the United States, and plentifully in Northern Georgia. The leaflets are numerous, lanceolate, serrate, rounded at the base, soft, pubescent beneath, petioles villous. The fruit is oblong-ovate, with a terminal projection, viscid and hairy, but oblong, acuminate, deeply and irregularly furrowed.

The bark is the part used in medicine; it is smoother and much lighter colored than the black walnut, and in the fresh state is acrid and will inflame the skin. The officinal portion is the inner bark, and that of the root is thought to be the best. It should be collected in May or June. It has a fibrous texture, a slight odor and a subacrid bitter taste. It yields its properties to boiling water. Upon analysis it yields a fixed oil, resin, saccharine matter, lime, potassium, and a peculiar principle with a trace of tannin.

There is now manufactured an extract termed juglandin, but I can not get the medical properties from this extract. The fluid extract, as prepared by pharmacists with whom I have been dealing, does not represent the aqueous extract, made by very gently boiling the bark, then very slowly evaporating to the consistence of common syrup.

General Uses.—Juglans cinerea is a mild cathartic in small doses, but in large doses it is inclined to gripe. It is given in the form of solid and fluid extract. It is of the natural order Juglandaceæ. The bark of the tree and root contain the juglandin, but the root is the stronger. The dose of the fluid extract is from half a drachm to one drachm; the dose of the solid extract is from ten to thirty grains; and of the juglandin, five to ten grains.

Juglans is a very certain cathartic, well suited to constipated habits, and often entirely relieves them. In persons subject to hæmorrhoids from constipation, it frequently cures the hæmorrhoids by relieving the constipation.

The fluid extract—combined with the fluid extract, or syrup of rhubarb—makes a very mild and certain cathartic, and is quite suitable in the forming stage of fevers or dysentery; it is preferable to castor oil in the confinement of females, and in many instances where oil is used to the very great detriment of the patient. This article, with aloes and podophyllin, makes a certain cathartic, and at the same time it acts well on the liver. Juglandin, with leptandrin, equal parts, makes a good aperient in small doses, or a cathartic in larger ones.

Medical Uses.—The extract, as above directed to be made, is one of our most certain cathartics, and is well suited to constipated bowels. The dose of the extract is from half a drachm to one drachm, in simple syrup. When it is evaporated to the consistency of pill mass, from five to ten grains is an ordinary dose. I have used the aqueous extract, in doses of twenty to thirty drops, in dysentery with the very best effects. It unloads the upper bowels without pain or exhaustion and lessens the tormina and tenesmus, and doubtless hastens the termination of the rectal inflammation.

Many who have used the juglans have given it (as they have given many other remedies) in over-doses, and got its toxic instead of its medical effects. In large doses it produces watery diarrhœa, tenesmus and very intense tormina, and doubtless, if persisted in, would result in violent inflammation. I have known small quantities, administered occasionally so as to keep up a soft state of the stools, to aid very materially in the cure of obstinate cases of hæmorrhoids.

But one of the most positive remedial effects of this article is in skin diseases. In many chronic exanthemata it is one of our most positive remedies. I recently treated one or two very obstinate cases of eczema with this remedy, alternated with the iodide of arsenic, and with positive success. In lichen, ecthyma, pemphigus, impetigo, herpes circinatus, rupia, acne, prurigo, molluscum, and all chronic cutaneous affections, it will act with great promptitude, if the preparation used be a good one. There have been cases of noli me tangere reported as cured by juglans; its specific tendency to the skin doubtless points to it as a remedy for that disease. Its local use has been long appreciated by the common people in tetter. I have frequently witnessed the curative effects of the rind of the black walnut when applied to tetter. I once cured a case of scrofula in a negro girl with an infusion of the leaves of black walnut.

The usual dose of the fluid extract is from one-fourth to half a drachm; the dose of the juglandin is, when properly

made, from five to ten grains; in skin diseases, two to three grains.

Juglandin.—Juglandin is the active principle of the juglans cinerea. This is one of our most certain and efficient cathartics, but when given in over-doses, it is liable to produce griping. In proper doses it has a specific tendency to act upon the mucous membranes and dermoid tissues, and this peculiar tendency renders it a valuable remedy in exanthematous fevers and cutaneous diseases. In most chronic skin diseases it may be very profitably combined with quinine; say juglandin, one-fourth of a grain, quinine, half a grain, every three hours. This combination is applicable to eczema, herpes, pemphigus, rupia, acne, impetigo, icthyma, lichen, prurigo, ichthyosis, molluscum, and all skin diseases.

In habitual constipation, from inertia of the mucous surface of the bowels, juglandin, combined with apocynin, will be found a mild, but certain remedy. This combination I have used in the most obstinate cases with complete success. The same combination is very efficient for the expulsion of the seat worm. This I found out by accident, while taking the remedies for constipation. In dysentery, juglandin, combined with the compound syrup of rhubarb, aids in cutting short the disease in the commencement, and is an appropriate aperient throughout the disease. The dose of juglandin is one-fourth to half a grain.

Aloe Socotrina-Aloes.

Aloes is obtained from the leaves of Aloes spicata, A. socotrina, A. vulgaris, and other species of aloes (natural order Liliaceæ), succulent, herbaceous plants, growing in hot climates, as near the Cape of Good Hope, etc. It readily yields its virtues to water and alcohol.

Medical Effects and Uses.—Aloes is a very certain cathartic, but does not operate until it reaches the lower bowels. In large doses, it is apt to induce a tendency to congestion of

the lower bowels, and in this way a great many cases of piles have been produced. It enters into a large number of the patent pills and bitters that flood the country, and in that way it has ruined the health of thousands. While it is very certain in its action, it is so liable to produce hemorrhoids that I seldom use it, except in combination with milder articles.

A good pill for constipation may be made by adding ten grains of podophyllin and thirty grains of leptandrin and half a drachm of extract hyoscyamus, to thirty grains of aloes, divided into thirty pills; dose, one to three, at night. If the digestive organs are out of order, six or eight grains of extract nux vomica may be used instead of the hyoscyamus. Aloes, in very small doses, in the form of a tincture, is a good nerve tonic, and for this purpose may be combined with belladonna and hydrastis. The dose of aloes is five to ten grains.

Aloin.—Aloin is a crystalline substance extracted from aloes. It is one of our most pleasant and serviceable laxatives and may be used in doses of from one-fourth to half a grain.

Leptandra Virginica—Black Root, Culver's Root, Physic Root.

Leptandra virginica, Culver's root (natural order Scrophulariaceæ), is an herbaceous, perennial plant, three or four feet high, with leaves in whorls, and the flowers white, in long spikes. Indigenous to the United States.

Medical Properties.—Leptandra is much used as a mild cholagogue cathartic, but more for its cholagogue property than for its cathartic effect. It is not much used now in the crude form of powder. Its effect is best procured by giving the essential tincture in doses of twenty or twenty-five drops every three hours, until it operates on the bowels thoroughly. The dose of the crude powder is twenty to thirty grains.

Leptandrin.—Leptandrin is the active principle of leptandra virginica. It resembles leontodin, in its natural tendency to correct the abnormal condition of the liver, and it also

exerts a salutary effect upon the whole digestive apparatus. In large doses, it is a cathartic, but in small doses, it is an alterative and excitant to the mucous tissues, liver and glandular system. In chronic hepatitis, leptandrin, combined with podophyllin, leontodin and chionanthin, has a specific curative influence, and promptly restores the liver to a healthy state.

In jaundice, one grain of leptandrin, one-fourth of a grain of podophyllin, one grain of leontodin, and two grains of chionanthin, given every four hours, will restore the healthy action of the liver and remove every trace of the disease in a few days. I seldom resort to any other course of treatment in this affection of the biliary apparatus; and I have found no remedies equal to the above combination.

In dyspepsia, where there is torpor of the liver and glandular system, leptandrin, combined with muriate of hydrastia, alnuin and fraserin, one grain each, will give tone to the digestive system with as great promptitude as any combination in the materia medica. In the forming stage of diarrhea, this remedy, combined with small doses of rhubarb and potassium, and given every three or four hours, has an alterative and soothing effect upon the mucous coat of the bowels, and corrects that morbid condition of the glands of the bowels upon which the disease depends.

In dysentery, leptandrin and the compound powder of rhubarb combined, given so as to produce a cathartic effect, relieves the severity of the symptoms in a few hours, and aids in cutting short the disease, if given early. In chronic diarrhea, leptandrin, in small doses, combined with the compound syrup of rhubarb and potassium, and repeated every two or three hours, has a very salutary effect, and frequently will check the disease without other remedies, but in obstinate cases, it may be alternated with astringents.

In piles, half a grain of leptandrin, one-fourth of a grain of juglandin, one-eighth of a grain of belladonna, and five grains of compound powder of jalap and senna, given every four or six

hours, so as to keep up a cathartic effect, will aid very materially in curing this troublesome disease. In the advanced stages of acute, or in chronic dysentery, one-fourth of a grain of gelsemin and two grains of leptandrin, given every four hours, in one or two drachms of syrup of rhubarb and potassium will act very beneficially. As a cathartic, in doses of four or five grains, given every four or six hours, it acts mildly, and without any perturbing influence. The usual dose is from one to two grains, pro re nata.

Senna-Senna, Cassia.

Senna consists of the leaflets of several species of cassia (natural order Fabaceæ), which are small shrubs, growing in the tropical regions of Asia and Africa. The officinal species are the C. acutifolia, C. obovata, and C. elongata. The species used in the United States are the Tripoli, the India, and the Mecca senna.

Medical Effects and Uses.—Senna is a very active cathartic, and in moderate doses, it is a safe and efficient one, and combined with jalap, it is well adapted to febrile and inflammatory diseases; also to unload the bowels in cases of cramp colic. It acts on the entire intestinal tract, producing watery discharges. In large doses it has a tendency to gripe, which may be counteracted by using it in combination with aromatics or the neutral salts. Senna is a good cathartic to add to tonic bitters when the bowels are torpid.

The patent medicine sold under the name of "Simmons' Liver Medicine," is senna, leptandra and serpentaria, which is a simple cholagogue cathartic. A much better combination would be senna, euonymus, eupatorium perfoliatum, and leptandra. This would be a good tonic cholagogue cathartic. The dose of senna is from half a drachm to two drachms. The infusion is the most useful preparation. It is made by adding one ounce to one pint of water; boil slowly; strain. Dose, three to four ounces.

Sambucus Canadensis-Elder.

This is a well known plant, indigenous to the United States (natural order Caprifoliaceæ). It grows from six to ten feet high, and is found in all the Atlantic States. The flowers are diaphoretic, and are considered alterative. The berries make a fine wine.

Medical Effects.—The bark is the part used as a hydragogue cathartic, and in large doses it proves emetic. I have often used this remedy, and generally to a point short of catharsis, in dropsy, in which it acts as a certain diuretic. The infusion, made by boiling two ounces of the bark in a pint of water, slowly, until strong, and given in doses of one or two ounces, is an active cathartic, and will soon unload the cellular tissue, and the cavities, of the excess of serum. I think it has more effect in finally curing dropsy than ordinary cathartics. It seems to lessen the accumulation without purging, by hastening waste through the kidneys.

A good form for this remedy is the wine tincture, made by adding from one to two ounces to a pint of wine. The dose is from half an ounce to one ounce, every three hours, as a diuretic, and two to three ounces as a cathartic in dropsy.

Aralia Hispida-Dwarf Elder.

The dwarf elder is less purgative and more diuretic than the common elder. I have used the dwarf elder in many cases of dropsy with good effect. The essential tincture is the most convenient for use; the dose is from thirty to forty drops.

Araliacein.—Araliacein is the active principle of the elders, but is especially contained in the dwarf elder. It possesses active alterative and considerable diuretic properties. It acts upon the glandular system with promptness, and hence is capable of an extended application. Some writers think that it relieves spinal congestion, and if so, it will be an important remedy in spasmodic affections originating from congestion of the spine.

I cannot speak positively from personal trial of any other properties, save its alterative and diuretic activity. As a diuretic I can speak very positively in its favor, as I have used it much, and with the most decided success, but I am not satisfied that the araliacein does possess all the properties of the crude article.

As a diuretic I would prefer the fluid extract, or the essential tincture, both of which, when properly manufactured, are very reliable articles. In anasarca and ascites I have used the fluid extract with decided success. The fluid extract may be combined with the oil of juniper and the fluid extract of ampelopsis quinquefolia, and given in all forms of dropsy, and there are but few, if any, combinations that equal the above, especially when alternated with iron and quinine as tonics. The dose of the araliacein is from one to five grains; of the fluid extract, from one to two drachms, repeated as may be required.

IV. DRASTIC CATHARTICS.

Ipomæa Jalapa-Jalap.

Jalap is the root of ipomæa jalapa, or exorgonium purga (natural order Convolvulaceæ), a climbing plant of Mexico, and derives its name from the city of Jalapa, near Vera Cruz. It yields its properties to diluted alcohol. The extract, called jalapin, is very feeble.

Medical Properties and Uses.—Jalap is a very certain and active hydragogue cathartic, acting in from three to four hours; in over-doses it is apt to gripe and produce hypercatharsis. I have used it, combined with cream of tartar, a great deal in dropsy, in the following form: Jalap, one part; cream of tartar, two parts; and to each dose add one grain of podophyllin. It is a good purge in cerebral affections. The dose of jalap is from ten to twenty-five grains; the dose of the compound powder of jalap and cream of tartar is from thirty to sixty grains, repeated in four hours if it fails to operate. The dose of the extract is from four to eight grains.

I use a compound powder of equal parts jalap and senna in colic; dose, thirty to sixty grains, repeated every three hours until it operates. This is a good article in colic, and sometimes I add one or two grains of the compound extract of colocynth to each dose, which makes it more certain to act. Excessive purgation is to be avoided, but when purgatives are necessary this one is safe.

Jalapin.—Jalapin is the active cathartic principle of jalapa or jalap. This, when manufactured chemically, is a full representative of the crude root of the ipomæa, and is an active hydragogue cathartic. It possesses a specific tendency to, and power over, the serous tissues, and as such, is indicated whenever there are accumulations of fluid in undue quantity in that tissue. In cases of peritonitis, pleuritis, pericarditis, and all dropsies, this is one of the first remedies indicated, and long experience has established its superior power to remove superabundant accumulations of fluid in the cavities of the body.

The power that jalapin has to stimulate the serous membranes to pour out fluid and thus empty the blood vessels, causing the absorbents to refill them, makes it one of our main remedies in the treatment of dropsies in their first stage; and for which purpose it may be combined with supertartrate of potassium, say jalapin one-eighth to one-fourth of a grain to two drachms of the supertartrate of potassium, every three or four hours, until free catharsis is produced. It should never be given in large doses, as it is liable to produce nausea, vomiting and griping. Its specific action upon the serous tissues point to it as an appropriate remedy in chronic inflammations of those tissues, given in small doses, say one-twentieth of a grain, occasionally. The usual dose is one to two grains, as a cathartic.

Podophyllum Peltatum-Mandrake, May-Apple.

Podophyllum, or May-apple (natural order Ranunculaceæ), is indigenous to the United States, and grows abundantly in the

Southern States, on rich bottoms and hill-sides near streams. The root is perennial, long and creeping, the stem is upright and about two feet high, separating at the top into two petioles, each supporting a long peltate leaf with five or six lobes, and in the fork of the petioles there comes a single flower in May; the fruit follows, which is a small pod, resembling an apple, and is rather pleasant to the taste when ripe. The root resembles jalap when pulverized; it contains an alkaloid, berberina and two resinous cathartic principles, both soluble in alcohol, but only one, in ether.

Medical Effects.—Podophyllum, like jalap, is an active hydragogue cathartic, with a special affinity for the liver (this is now denied) and the upper part of the alimentary canal. It acts briskly, and, like jalap, in over-doses it produces hypercatharsis. I use this with cream of tartar, as I do jalap, and find it to act in a similar manner. I use the podophyllin more than the crude article, as it acts more promptly and without pain in medium doses, say one or two grains. The dose of the crude powder is fifteen to twenty grains.

Podophyllin.—Podophyllin is the concentrated medical principle of the podophyllum peltatum. This article varies in its effects upon the system according to the size of the dose. In large doses, say five to eight grains, it is apt to produce emetocatharsis, is quite drastic and nauseating in its action, removes a great deal of bile from the liver, and any intestinal worms that may be contained in the bowels. In smaller doses, say from one-fourth to half a grain, repeated three or four times a day, it excites the liver and glandular system, and if long continued may produce ptyalism and watery discharges, or even diarrhœa. I never use it alone as a cathartic, but combine it with other remedies, to modify its action and prevent its irritating effects.

As a cholagogue I use the following formula: Podophyllin, five grains; euonymin, ten grains; leptandrin, twenty grains; dioscorin, twenty grains; leontodin, ten grains. Dose of this,

from one to three grains every four or six hours. It is one of the best combinations in obstruction of the liver that I have ever tried. In jaundice, I use one-eighth of a grain of podophyllin with two or three grains of chionanthin every four hours, and it is a specific in that disease. As an alterative in syphilis, I use a combination of from one-eighth to one-fourth of a grain of podophyllin; one fourth of a grain of phytolaccin; and one grain of corydalin. This, given every four hours, is a good alterative to the general system.

As a cathartic, in cases of habitual constipation, half a grain to one grain of podophyllin, one-fourth of a grain of pulverized nux vomica, and two to four grains of compound extract of colocynth, given in pills every six or eight hours, will effectually restore the peristaltic action of the intestines, and remove the constipation in a few days.

In dysentery, in the forming stage, one-fourth to half a grain of podophyllin, two grains of leptandrin, and five grains of compound powder of rhubarb and potassium, given every four hours until it operates as a cathartic, will unload the bowels, act on the liver, and aid much in the speedy removal of the disease. In the forming stage of summer fevers, where there is torpor of the liver and local congestions, half a grain to one grain of podophyllin and five or ten grains of compound powder of jalap and senna, given every three hours until it acts freely upon the bowels, will prepare the system for antiperiodics, and remove the tendency to local congestions.

Podophyllin, given in doses of one-eighth of a grain every four or six hours, acts gently on the liver and exerts an alterative effect upon the glandular system, exciting the salivary, gastric, muciparous or intestinal glands, overcoming torpidity of the bowels, and eliminating through the intestinal exhalants, any materies morbi from the blood. It is a very active defibrinizer of the blood, and should not be continued too long. This last property makes it a potent remedy in inflammatory diseases, as rheumatism, and many others of a sthenic type. In cases of

determination to the brain, podophyllin, given in cathartic doses, has a prompt and actively derivative effect, and will soon restore the equilibrium to the circulation.

In hypertrophy and cirrhosis of the liver, podophyllin given in doses of one-eighth of a grain three or four times a day will be found an active remedy, especially when combined with chionanthin and leptandrin, say two grains each. In children, where the liver is inactive, and the bowels torpid and tumid, one or two grains of leptandrin and from half a grain to one grain of podophyllin may be added to one ounce of compound syrup of rhubarb and potassium, and one drachm given every three hours; this soon restores the action of the liver and removes the constipation, and thereby hastens elimination, etc. In cases of induration and torpor of the lymphatic vessels, small doses of podophyllin, with iodine, will be found to be very prompt in removing the induration and bringing about a healthy state of that part of the system.

Podophyllin should never be given without being triturated, one grain to ten of lactin, as it is so concentrated that it has an irritating effect upon the mucous coat of the alimentary canal, which is much lessened by being triturated; this is true of most concentrated medicines. The usual dose of the triturated article is from one to four grains, repeated as may be required. As an alterative the dose should be small, say half a grain to one grain of the triturated article.

Convolvulus Panduratus—Wild Jalap. Mechameck, Wild Potato, Man in Earth.

The convolvulus panduratus is indigenous to the United States, growing in sandy soil. The root is the part used; it is large, of a sweetish, and then bitter taste, perennial, and tapers to the end. The vine and leaf resemble that of a common yam potato. The bloom is about the size, and much like the morning glory, of a dirty white color.

Medical Properties.—Convolvulus is a very certain cathartic when fresh, and taken in strong infusion, in doses of one or two ounces. The tincture, in diluted alcohol, probably would have the same effect. It should always be made from the fresh root, as the dried root is worthless, and this is the cause of its having fallen into disrepute. It is a good cathartic in dropsy, and has a diuretic effect when given to a degree short of purgation. Some writers speak favorably of it in pulmonary diseases, but I have not used it in that way.

A saturated tincture may be made by covering the fresh root, well bruised, in alcohol (60°). The dose would then be one drachm as a cathartic, and ten to twenty drops in coughs; thirty to forty drops as a diuretic. It is much like jalap in its action, and very applicable in cases of dropsy, as it acts both as a hydragogue cathartic and as a diuretic. For chronic coughs, a syrup of convolvulus is a good form for use, and may be used just short of purgation.

Scammonium—Scammony.

Scammony is the resinous exudation from the convolvulus scammonia (natural order Convolvulaceæ), a twining plant in Syria. The virgin scammony is the best; it comes in light, irregular friable pieces, of various shades of color, of bitterish and acrid taste. It melts in alcohol and ether. It is often adulterated, and is then of a darker color.

Medical Effects.—Scammony is an energetic hydragogue cathartic, but it acts sometimes with great violence, and is seldom given alone. The dose is from five to ten grains.

The resin is made by digesting six ounces of scammony in boiling alcohol successively until exhausted, mixing the several tinctures, then reducing it to a syrupy consistence by distilling off the alcohol, and then precipitating with a pint of water. The dose of this resin is from four to eight grains. This is much used for the compound extract of colocynth, but is an imposition on physicians. There are a great many such impo-

sitions on physicians who depend on druggists to prepare their remedies. Scammony may be used in extreme cases of constipation, combined with other milder articles, as aloes, jalap, gamboge, etc. I seldom use this or any other very active cathartic.

Colocynthis—Colocynth.

Colocynth is the fruit of cucumis (citrullus) colocynthis, or bitter cucumber (natural order Cucurbitaceæ), an annual plant growing in the south of Europe and parts of Asia and Africa. It resembles the watermelon; the rind is thin and is peeled off, the pulp only being used. It is of an intensely bitter taste. It yields its virtues to water and alcohol. Its cathartic principle is a resin called colocynthin, which is very bitter to the taste.

Medical Uses.—Colocynth is not much used now except in the form of the compound extract. The compound extract is made by adding forty-eight ounces of colocynth to eight pints of alcohol, diluted, steeping until exhausted, then percolating the residue with diluted alcohol to sixteen pints. The alcohol is then distilled off and the extract dried and pulverized. Three and one-half ounces is then mixed with twelve ounces of purified aloes, three ounces of the resin of scammony, one ounce of cardamom and three ounces of good soap. This makes a mild cathartic, in small doses, combined with capsicum or some aromatic, as cloves. It is a hydragogue cathartic in large doses, and sometimes acts harshly; but when combined with jalap or senna, it is much milder. The dose is from five to eight grains.

Colocynthin.—Colocynthin is the cathartic principle of the cucumis (citrullus) colocynthis. This is a hydragogue cathartic; when given alone, it is apt to produce watery evacuations, and if given in large doses, it is liable to produce griping and more or less inflammation of the bowels. It is one of those medicines that should never be administered alone, nor in very large doses; nor should it be continued too long.

In certain conditions of the system, for instance where

there is phlogosis, colocynthin, combined with jalapin and podophyllin, becomes an appropriate agent to unload the serous tissues, and by increasing endosmosis and exosmosis, becomes a valuable addition to other hydragogues in the various species of dropsy. In small doses, combined with bitartrate of potassium and apocynin, it exerts a beneficial effect in dropsy, and is an active depletive in gout and acute rheumatism.

In small doses, say one-tenth to one-twentieth of a grain, combined with one grain of collinsonin, given every three or four hours, it is a valuable remedy in certain chronic inflammations attended with adhesions of the serous tissues, as in chronic peritonitis, pleuritis and pericarditis. The above combination will stimulate the torpid capillaries, break up morbid adhesions, and restore the tissues to a normal condition. In constipation from inactivity of the glands of the intestines, one-tenth of a grain of colocynthin, one grain of juglandin and one grain of apocynin, given once or twice a day, will remove the constipation. The usual dose is from one-tenth to one-fortieth of a grain.

Gambogia-Gamboge.

Gamboge is the gum resin of the garcinia morella (natural order Guttiferæ), a tree growing in Siam and Cochin China. It comes in rolls, called pipe gamboge, of bright-yellow color. It contains from twenty to twenty-five per cent. of gum, and from seventy-five to eighty per cent. of resin, and is soluble in alcohol.

Medical Uses.—Gamboge is a powerful hydragogue cathartic, and in large doses has proved fatal. It often produces emesis in large doses, and sometimes even in small doses. Combined with jalap and cream of tartar, it is employed in obstinate constipation, and in dropsy. It should be given with care, and not continued long, as it is, like aloes, very liable to produce piles. It enters, like aloes, into most patent pills, to make them certain to purge, and thus thousands of cases of

piles are produced annually. The dose is from two to four grains.

The compound cathartic pill of the United States Dispensatory is made by mixing thirty-two grains of the compound extract of colocynth, twenty-four grains each of extract of jalap and podophyllin, and six grains of gamboge; form a mass with water, make into twenty-four pills. They may be given in doses of one or two pills as an active cathartic, in constipation. They act promptly.

Elaterium-Elaterium.

Elaterium is the juice of the fruit of the momordica elaterium, ecbalium agreste, or squirting cucumber (natural order Cucurbitaceæ), an annual vine indigenous to the south of Europe, and now cultivated in England. It is of a bitter, acrid taste. It is soluble in alcohol and water. Its active principle is called *elaterin*, which crystallizes in colorless, shining, rhombic, six-sided tables, of a bitter, sharp taste; insoluble in water, but soluble in alcohol (C_{20} H_{28} O_5). It is a powerful cathartic in doses of one-twentieth to one-twelfth of a grain.

Effects and Uses.—Elaterium is one of the most powerful hydragogue cathartics in the materia medica. If given in overdoses it is apt to act with violence, and sometimes even proves fatal. It acts also as a diuretic, and Prof. King, of Cincinnati, says it is a very positive remedy for irritable bladder, given in the form of a tincture, in doses of three to five drops every two or three hours, to a degree short of purgation.

It is seldom given, except in dropsy, for which it is very efficient; sometimes it would be an appropriate revulsive cathartic in cerebral affections, but it must always be administered cautiously. The dose of the pure drug (Clutterbuck's elaterium), is one-eighth of a grain; of the ordinary drug of the shops, from half a grain to one and a half grains; and it is best to give it in broken doses. I do not often use it, and think it seldom called for.

Oleum Tiglii-Croton Oil.

Croton oil is a fixed oil, obtained from the seeds of the croton tiglium (natural order Euphorbiaceæ), a small tree of the East Indies. The croton seeds resemble the castor oil seeds in shape and size. It is soluble in ether and volatile and fixed oils, and partially soluble in alcohol. It is of pungent taste.

Medical Effects.—Croton oil is a very prompt hydragogue cathartic, operating in a few minutes after it is swallowed. The dose is from one to two drops, but as much as five to ten drops may be needed. It is dangerous in over-doses, and sometimes even proves fatal. Much mischief has been done by putting it in patent vermifuges, to make them purge with certainty. It is only applicable in extreme cases of constipation, and then is best mixed with a large quantity of syrup, or tinctured in alcohol.

Mixed with olive oil, one part to seven, or with equal parts of sweet oil, it pustulates the skin, and is much better and safer than tartar emetic ointment. In coma, the speediness of its action renders it an appropriate cathartic; also in colic from crude and indigestible articles of food, it answers well as a means of speedily relieving the bowels of their contents. It may be given in doses of one or two drops, and repeated if necessary.

V. MERCURIAL CATHARTICS.

The preparations of mercury usually employed as cathartics are calomel (hydrargyri chloridium mite—mild chloride of mercury); blue pill (mercury with conserve of roses), and hydrargyrum cum creta (mercury with chalk). But Headland says: "No preparation of mercury acts as a cathartic until it is converted into a chloride by the addition of the hydrochloric acid of the gastric fluid." Hence the most direct and speedy way to procure this action is to use the corrosive chloride of mercury, corrosive sublimate (Hg Cl₂), at once,

which often produces death by its corrosive effects upon the gastro-enteric mucous surface.

Prof. Biddle, of Philadelphia, whose lectures I attended in the Jefferson Medical College, says:1 "In excessive doses, corrosive sublimate is a violent caustic poison, from its affinity for albumen, fibrin and other constituents of the tissues. acts very rapidly, producing the most intense gastro-enteritis, with violent vomiting and purging, abdominal pain and tenderness, bloody stools, with death from collapse, or, after a time, with convulsions and coma." O, merciful heavens! deliver us from such infatuation that leads men to use a remedy that produces such a train of diseases. Mercury has long been used as an alterative, and yet no man can perceive any such effect follow its use. Mialhe says all mercurial preparations are changed into a bichloride by the gastric fluid, and that this accounts for the toxical effects of mercurials. He also says: "Corrosive sublimate is the only mercurial which acts on the system at all."

My experience is, that the dose of calomel does not influence its purgative or toxic effect, its activity depending altogether upon the amount of gastric fluid in the stomach. Hence in many diseases, as fevers, cholera, etc., where the gastric fluid is scanty, very large quantities of calomel have been given without any effect at all. Headland says: "One or two grains of calomel in the stomach, or one drachm of mercurial ointment rubbed into the skin, may be followed by violent mercurialism or produce necrosis of the jaws and death," "Thus," says he, "the action of calomel depends on the system rather than on the dose; so of blue pill." He says later on: "In many old histories of syphilis it is too painfully apparent to us that a large part of the recorded symptoms were due to the mercury given."

¹ Biddle's Materia Medica, page 316.

² Headland on the Action of Medicine, page 370.

³ Ibid, page 370.

⁴ Ibid, page 371.

This is the truth. Then why use a remedy of such danger, and of such doubtful utility?

Mercury has been extensively used for its cholagogue property. Headland says: "All cathartic medicines act as indirect cholagogues." Hence, other cathartics will produce this effect, without the danger attendant upon the use of mercury. Many articles produce it with much more certainty, and without congestion of the liver.

Mosler, in Germany; Inman, Thudichum, Scott, and others in England, say that mercury diminishes instead of increasing the secretion of the bile. Hughs Bennett also is of the opinion that mercury does not increase the power of the liver to secrete bile. My experience is, from very extensive trials, that mercury congests the liver, and may thereby empty the gall-bladder of its contents at the time, but does not in the least increase the secretory functions of the liver.

Why should any therapeutist think for a moment that mercury could increase the biliary secretion, as there is not one single constituent element of bile in any preparation of mercury? But, as the bile is largely composed of alkalies, the liver may be assisted by vegetables that contain alkaloids that may readily be converted into the constituents of the bile. Hence, our cholagogues are such minerals as enter into the composition of the bile, and such vegetables as contain alkalies that compose the bile, and these are many.

As it is a mooted question with the ablest therapeutists of the world whether or not mercurials act at all as true cholagogues, and as it is acknowledged by all therapeutists, that the use of all preparations of mercury is attended with great danger, not only to the future health of the patient, but to the life of many that take it, I would ask any man why he thus uses or recommends others to use an article of doubtful utility at best, but known to be very detrimental to health under all circumstances, and often fatal to life.

As a purgative, mercury is very uncertain in its action, and

when it operates at all, it nauseates the stomach for days, and leaves a metallic taste, destroying the appetite for a considerable time to come. Although it was once given as a febrifuge or antiphlogistic, it is now acknowledged by able therapeutists that it possesses no such power. It has long been relied on as an antisyphilitic, and yet Headland acknowledges that many of the symptoms of secondary and tertiary syphilis have been produced by the mercury given; it is well known, also, that many patients die under the full influence of the mercury. Should we not, then, abandon its use for something safe and more certain in its action? Humanity answers—Yes.

CHAPTER XIV.

Cholagogues.

Having noticed cathartics, or at least the principal ones, and all that are absolutely required, it will be our aim now to give a list of the most approved cholagogues. Many able therapeutists deny that any such action of remedies exists; but I am not prepared to admit this statement, although Prof. Hughs Bennett is one of the great men who deny the direct cholagogue action of medicines. I am fully satisfied that there are many remedies having this action, and some that have not been hitherto used for that purpose.

The bile is a viscid compound of the specific gravity of 1.02; having an alkaline reaction; containing in solution a sort of soap, formed by the union of soda with two organic acids; a yellowish-green coloring matter; some fatty compounds, and a crystalline principle called taurine.

The function of the liver is doubtless of great importance in the animal economy. We are positive that certain elements are excreted from the system by the liver, which if allowed to remain in the blood, would prove ruinous to health, as is the case in jaundice. Liebig says that the elements of the bile are reabsorbed and enter into the blood (or at least a portion of them), for the purpose of being converted into use in the economy. What purpose they serve is not known.

A disordered liver, however, unassociated with disease of other functions, is comparatively rare, and the old idea of the liver being the source of so many ailments is all imagination. A failure in the secretion of the bile is readily known by the icteric hue. Jaundice is often the result of an obstruction in

the hepatic ducts. And in such cases, it is useless to urge the liver to an extra formation of its secretion, which, of course, can find no outlet.

There are cases, however, where there is slight discoloration of the skin, due to torpidity, congestion, or chronic inflammation of the liver. Here cholagogues may be given. In cases of acute inflammation and structural changes of the liver, cholagogues will do harm, There are many intestinal diseases, as also chronic blood disorders, which are associated with torpidity or derangement of this viscus. Constipation is often the result of its inaction. Medicines that directly act on the liver are applicable in all diseases of that organ.

There is a vital connection between the alimentary canal and the liver, and all cathartics indirectly act as cholagogues, simply from the fact that whatever will excite the functions of the bowels, also affects the functions of the liver. Hence, bile is rapidly poured out during the process of digestion. The peristaltic motion and extra secretion produced in the bowels by the action of a cathartic, also causes a sympathetic formation of bile.

This has led the ignorant of the profession to the idea that there was excess of bile in the system, and they make the poor ignorant people believe the same thing, and hence, keep them swallowing purgatives from day to day, and from week to week, under the vain hope of getting rid of bile in the system, which they are taught to regard as poisonous to them; when in fact, it is an essential element to the proper digestion of the contents of the duodenum.

Under the false idea that there was too little bile, or too much bile, hundreds of fine constitutions have been ruined and even many noble lives sacrificed upon the altar of professional ignorance. The function of the liver is but illy understood by a large majority of the profession, and hardly at all by the common people. The liver needs restudying; its function is not to be goaded by mercurials.

Physiologists have hitherto been regarding the liver as the mere elaborator of bile, and have regarded what is called biliousness as indicating a torpid liver.

This is a great error, and leads to improper treatment. Much of our food consists of fat, albumen, starch, and cane sugar. The fat does not make sugar, but the albumen, starch, and cane sugar do. The starch from various grains, and other sources, is converted into grape sugar by the saliva and pancreatic juice, and the cane sugar into a mixture of glucose and another sugar called levulose, by the aid of the intestinal juices. The albumen is converted into peptone by the gastric and pancreatic juices. The sugar and peptones thus formed by the intestinal juices are absorbed by the veins of the intestinal canal; but they are not all thrown into the general circulation and carried to the brain and muscles, for the liver acts as a store-house in which the nutriments absorbed during digestion are laid up, and gradually given off to the blood during the hours between meals.

The portal veins convey the sugar into the liver, and by the liver, it is converted into glycogen, and stored up in the hepatic cells for future use. If the portal veins fail to thus carry it directly to the liver, and if it be abnormally conveyed to the heart, without going first to the liver, then glycosuria occurs. The first great function of the liver is to form glycogen from the sugar and peptones supplied to it from the intestines, which it stores up until needed. This giving out of the stored-up glycogen is the second great function of the liver. The glycogen, however, is gradually transformed into sugar again. Being thus transformed, it is conveyed into the liver by the blood, carried into the general circulation, and appropriated. Rather as superfluous matter, bile is now thrown into the intestines by the liver, but it is believed that it serves some useful purpose in the process of secondary digestion. Much of it is reabsorbed, and great excess causes diarrhea. This function of the liver has much to do with our treatment of various diseases.

"Mercurial purgatives do not increase the bile-producing power of the liver, but they sweep out the bile products in the intestines and portal circulation," says Brunton. This any purge may do, without risking the dangerous constitutional effects of mercurials. It is thus that mercury is followed by bilious stools, just as most purgatives are, when there is already bile in the alimentary canal.

We have said that glycogen is formed from saccharine food, from farinaceous food, and also from nitrogenized materials which are split up by the liver into glycogen, and azotized waste matters, which latter, by uniting with oxygen, are soon changed into uric acid and urea, and are excreted as such by the kidneys. Much of the sugar is burnt up in the body, producing in its oxidation carbonic acid and water, and evolving heat.

We are not yet acquainted with many medicines that act on the secretory function of the liver, but we know of several that act in this way upon the eliminative plan, passing out thus through the liver. Doubtless the sulphate of manganese thus acts, and perhaps podophyllin, leptandrin, euonymin, xanthoxylin, taraxacum or dandelion, eupatorium perfoliatum, and some others. Manganese, perhaps, has the most direct affinity for the liver of any mineral remedy, and probably of any remedy. Gmelin experimented with it on animals, and he found that it produced an extraordinary secretion of bile. It is also an active purgative.

Certain other purgatives are correctly esteemed as specific cholagogues, as rhubarb, aloes and iris versicolor. Headland thinks that sodium, potassium, and other alkalies and fatty substances, may act as cholagogues, as they are contained in the neutral secretion of the bile, and are hence, likely to pass into it. The salts contained in the acids of fruits, which are changed by digestion into alkalies, are also frequently active cholagogues, acting, not as eliminatives, but as restoratives, supplying certain needed elements of the blood.

We have already spoken of the articles composing this class of remedies under the name of "Purgatives," and will now notice them briefly under the head of "Cholagogues."

Mangani Sulphas-Sulphate of Manganese.

This salt may be readily prepared for use by heating the native black oxide of manganese with concentrated sulphuric acid. It will then consist of one equivalent of sulphuric acid and one of protoxide of manganese (Mn S O₄,+4 H₂ O). It occurs in rhombic, prismatic crystals, of a pale rose or pink color, transparent, and of an astringent, bitter taste. It is soluble in water but not in alcohol.

As a cholagogue, manganese sulphate is one of our most prompt remedies. The medium dose is five grains, and may be increased to twenty. Where it is desirable to produce a purgative effect at the same time, it may be given in doses of one or two drachms. The best way to use it is to give small doses at night, so that it does not purge; then repeat it next day, and so on, from day to day, until the liver acts well. I have given the experiments of Dr. J. H. Wright, of Van Buren, Arkansas, in my remarks on manganese sulphate as a purgative.

Podophyllum Peltatum-May-Apple, Mandrake.

Podophyllum has already been spoken of as a cathartic, and we have only to speak of its cholagogue action here. This article acts upon the various tissues of the system as an alterative, and its action continues for a considerable time. In chronic liver affections it has no equal in the materia medica. In old cases of mercurial poisoning, it acts promptly. In cases of dyspepsia, attended with constipation and torpidity of the liver, we have no better remedy than this to combine with tonics. And as a tonic and alterative, I prefer the tincture, in ten or fifteen-drop doses, even to the podophyllin. In remittent fever, it may be given with gelsemium or aconite, with good effect.

As a cholagogue, the podophyllin may be used in doses of one-fourth to half a grain, combined with leptandrin or dandelion, one or two grains. As an alterative, it may be combined with stillingia, corydalis, chionanthus, and others of that class. As a mild cathartic in constipation, it may be combined with the compound syrup of rhubarb; say two grains of podophyllin to one ounce of the syrup; dose, one drachm three times a day; or the tincture may be used in combination, say one-fourth of an ounce to one and three-fourths ounces of the compound syrup of rhubarb; dose, one to two drachms, three times a day.

Leptandra Virginica — Black Root, Culver's Physic, Tall Speedwell.

Leptandra is an indigenous plant, and is said to be best in limestone regions. The freshly dried root is used, as the green root is rather harsh in its action. Leptandrin is the dried powdered extract, and represents the crude root when properly prepared, but much of it is made of the old, dried, dead root, and is, hence, worthless. The freshly dried root, pulverized, is a fine tonic cholagogue, and very appropriate in old cases of hepatic disease. It is a good laxative in fevers.

As a cholagogue and tonic laxative, it is peculiarly applicable in cases of dyspepsia, associated with torpidity of the liver; and for this purpose, one ounce of the root may be added to two ounces of golden seal and two ounces of senna, and boiled in a quart of water down to one pint; and one pound of sugar added, and boiled to one pint. Of this syrup, from half an ounce to one ounce may be given three or four times a day, and the quantity increased if it fails to operate gently, or diminished if it should operate too much. This is very far superior to Simmon's liver medicine, so popular with the people. I have used leptandrin a great deal, and find it one of those certain, mild remedies, that does its work without much perturbation of the system. Dose of the root, twenty to thirty grains; dose of leptandrin, two to four grains.

Leontodon Taraxacum-Dandelion.

The taraxacum dens-leonis, or dandelion, is a small perennial plant, common to most parts of the world, and grows very abundantly in most parts of the United States (natural order Cichoraceæ). The root is the part used, and is best gathered in autumn.

Medical Effects.—This article is very slightly aperient and tonic, with a special affinity for the liver. It may be given in the form of infusion, in doses of one or two ounces three times a day. The extract is given in doses of twenty to thirty grains, and the fluid extract in doses of from one to two drachms. The leontodin may be given in doses from five to twenty grains, according to the effect desired. It need not be given as a cathartic. Where a cathartic and cholagogue effect are both desired, it may be combined with podophyllin and leptandrin.

This remedy is not as speedy in its action as those named before, but is very mild yet certain in its effects. It is very well suited to those cases of torpid liver following the use of mercury, and may be given in small doses, repeated three times a day, until it acts on the liver. It, like leptandrin, may be combined with tonics in dyspepsia and disease of the liver; for which purpose the extract, made from the fresh root, should be used.

Leontodin.—Leontodin is the active principle of the leontodon taraxacum. It has an elective affinity for the liver. There are few remedies that have so direct a tendency to act upon the secretory function of the liver as leontodin. It seems to impart tone and energy to that organ, and thereby to hasten the formation of biliary matter, without any deleterious impression upon it or any part of the organization. While it stimulates and energizes the liver, it also has an alterative effect upon it, but is devoid of that deleterious influence exerted by mercurials. It does not, like mercurials, congest and permanently disease the liver, but merely imparts increased energy, and aids it in the performance of its natural function.

In those cases of congestion of the liver, either from long continued use of mercury or from the heat of summer, the leontodin, combined with chionanthin, leptandrin, and podophyllin, will relieve that condition, and bring the liver to a healthy action in a short time. I ordinarily use the following combination: Leontodin, twenty grains; chionanthin, ten grains; leptandrin, twenty grains; podophyllin, five grains: Make twenty pills; one or two to be taken every six hours, so as to act gently upon the bowels.

In typhoidal diseases, where the salivary glands are torpid, the tongue dry and the teeth covered with sordes, leontodin will soon correct this state. The usual dose, as an active cholagogue, is ten to twenty grains.

Gillenia Trifoliata—American Ipecac, Indian Physic.

Gillenia trifoliata is an indigenous plant, with a perennial root, consisting of a number of fibers arising from a tuber; one or more stems, from two to three feet high, of a reddishbrown color; trifoliate leaves; flowers white, with a tinge of red (natural order Rosaceæ). West of the Alleghany Mountains there is another species of this plant, the G. stipulacea, which is said to be identical in properties with the G. trifoliata, and to be distinguished from it only by its lower leaves being pinnatified. The root is officinal.

Effects and Uses.—Indian physic is a very positive cholagogue, acting at the same time as a tonic to the digestive powers, but in large doses it will purge and vomit. There are but few better cholagogues than the gillenia.

I discovered its cholagogue properties in taking it by the advice of a lady who had used it for extreme hepatic torpor, and I found that it acted with much certainty as a tonic and cholagogue, producing large quantities of bile. I think its emetic and cathartic powers depend upon the large amount of bile that it throws out from the liver. Tinctured, and given in doses of fifteen to sixty drops, it will be found to act well upon

the liver, and upon the digestive powers. The tincture may be made by adding six ounces to one pint of alcohol.

Gillenin.—Gillenin is the active concentrated principle of the gillenia trifoliata, or G. stipulacea. The crude article is an active emeto-cathartic in large doses; in smaller doses it is a fine cholagogue and tonic, acting most powerfully on the liver. As an emetic, it resembles ipecac in action. I was led to the use of it by seeing a lady friend use it in dyspepsia and disease of the liver. I noticed that when she was troubled with indigestion, constipation, and from inactivity of the liver, she resorted to her usual remedy, and always with very prompt success. I then tried it upon my own person, in small doses, and found that it increased the appetite and improved digestion, and also overcame constipation.

Gillenin, properly prepared, will produce the same effects upon the liver. I think it is destined to become a very important addition to our list of cholagogues. Many writers now, after being disappointed with mercurials as cholagogues, are incredulous in regard to the action of all remedies of that class; but if any man who thus disbelieves in the action of liver medicines will take two grains of gillenin every night and finds that it does not act well on the secretory function of the liver, I will agree that there are no cholagogues. As a tonic, the dose of gillenin is from one-fourth to half a grain, repeated twice or thrice a day, as desired.

Gillenin should be prepared properly from the gillenia trifoliata, in its fresh state, so as to represent the gillenia. It is then an active emetic in large doses, and generally produces a cathartic effect at the same time, by arousing the action of the liver and the mucous secretion of the bowels. In smaller doses than is requisite to produce emesis, it is diaphoretic, expectorant and tonic.

In suitable doses, it is an efficient and mild emetic, and may be substituted for ipecac in all cases where that article is indicated, and will be found more relaxing to the capillary system. As an emetic, it may be combined with lobelin, say half a grain to one grain of each every ten or fifteen minutes until it operates as an emetic. It will also be found an efficient emetic and diaphoretic in the forming stage of fevers, bronchitis, pneumonia, and other inflammations of an acute character. It acts efficiently upon the liver and the secretory apparatus generally.

Dr. Eberle recommends it highly in dysentery, in combination with opium, as a sudorific. The same writer recommends gillenin in dyspepsia, and I can heartily indorse his recommendation. I have witnessed the good effects of this remedy in dyspepsia. Its tonic and cholagogue properties render it an appropriate remedy in this disease. The dose, as a tonic, is from one-fourth to half a grain; as an emetic, one to two grains. It may be triturated, one grain to ten of lactin, for convenience.

Berberis Vulgaris—Barberry.

The barberry is a native shrub of Europe, but is now naturalized in the United States, especially in New England, and there is an indigenous American species found in the Southern States, called B. canadensis. (See Griffith's Botany.)

Medical Properties.—This is another of our indigenous remedies that has not received proper attention. It has decided action upon the liver, not so powerfully influencing the transformation and development of bilious matter as some other articles, but it very gently tones up that organ, and thus causes it to generate an increased quantity of the fluid. It cures jaundice.

In cases of hypertrophy of the liver, and degeneration of structure, the barberry has the peculiar power of producing most favorable changes; it invigorates and restores this organ to a normal state. I was led to investigate its valuable cholagogue properties by witnessing its effects upon a lady who had been treated with mercurials until she became dyspeptic, and had hypertrophy of the liver: and by the use of barberry, in the form of bitters, she was entirely restored to health in a

short time. This led me to test it in several cases, and I found it a good remedy. With chionanthus it is good in jaundice. Dose of the tineture, one-fourth to half a drachm.

Chionanthus Virginica—Fringe Tree, Old Man's Graybeard, White Ash.

Chionanthus virginica grows abundantly in Georgia, in all the sandy land of the middle and southern parts of the State, attaining a height of eight or ten feet. Its flowers grow in clusters or panicles; petals long and snow-white, like fringe. Hence, it is called the fringe tree.

Chionanthus is one of the best liver remedies, not that it acts so immediately and so forcibly on that gland as some of the other articles of this class, but it fills a place not so well filled by any other article. It is a positive specific for certain forms of jaundice.

I was elated with the very happy success of the new remedy, as heretofore stated, in my own case, and when I commenced practicing medicine, I tried it in the first case of jaundice, in which it proved as positive as in my own; and I have continued to use it with like success for several years. About the time Hallembeck, of Philadelphia, was writing his work on Materia Medica, I published my success with this remedy, which was transferred to his work. From time to time after that I called attention to this remedy, and it is now used by most Eclectic and many Homeopathic physicians in all liver affections.

It has always proved a specific for jaundice in my hands, and a valuable remedy in hypertrophy and congestion of the liver. It does not seem to act as forcibly upon the secretory function of the liver as some articles of its class, but in all abnormal conditions it seems to have the power to bring back the liver to its normal state. It has a specific influence over that organ in its diseased state, let that morbid condition be what it may. It is not cathartic in its action, but acts more as a tonic to the bowels, liver and stomach, and, I think, influences

the spleen and the whole glandular apparatus. In very large doses it has produced ptyalism, which soon passes off after the medicine is discontinued.

It not only acts well upon the liver, stomach and glandular system, but seems to have a curative effect on some female diseases. It is very favorably spoken of by some physicians in congestion and chronic catarrh of the uterus. It is also much used by the people in rheumatism. A gentleman told me that his sister was cured of an attack of inflammatory rheumatism with this remedy, given as bitters, made by steeping it in spirits.

I now use it in the form of a saturated tincture, made by adding one pint of alcohol to eight ounces of the fresh bark of the root. The dose is from thirty to sixty drops of this tincture, three times a day.

Chionanthin.—Chionanthin was first prepared by me. It is an active, concentrated principle of the chionanthus virginica. I prepared this article and recommended it to the profession many years ago¹ as being an active alterative, and a specific in jaundice. I have since then (1858) used the article in a great many cases, both as an alterative and a cholagogue, and have had my first favorable impression of its virtues more than ever confirmed. If properly made, chionanthin, I think, represents most of the therapeutic virtues of the crude chionanthus; at least, it contains its alterative and cholagogue properties.

Becoming jaundiced, from the use of mercury, in the year 1843, I became impressed with the prompt effects of the chionanthus by having been cured by it of that disease in a few days, after having tried several physicians, and then the faculty of the Augusta Medical College, of Georgia, to no purpose. While the chionanthus relieved me of jaundice, it also very much relieved me from the evil effects of mercurials. I have

¹See Hallembeck's Materia Medica, page 95, in which he quotes from the Eclectic Medical Journal, of Philadelphia.

repeatedly tried it in cases of jaundice, which had been long treated, unsuccessfully, with mercurials, and have never failed except in one instance, and that one, I think, was dependent upon gall-stones of the biliary ducts. It is one of our best remedies in jaundice. The dose is from two to four grains, every three hours.

Chelidonium Majus-Great Celandine, Tetter Wort.

Celandine is a fleshy herb, of a pale-green color, indigenous to Europe, but now naturalized in this country. It grows along fences, by roads, and in waste places, and flowers in May and on to October. When bruised, it exudes a yellowish, offensive juice, of a persistent, nauseous, bitter and biting taste. The root is the most bitter part, and is preferred for medical purposes. It should be tinctured while green, as drying diminishes its medical properties. It yields its virtues to alcohol and partially to water. The tincture may be prepared by adding eight ounces of the root and plant to one pint of alcohol (76°). Dose, five to ten drops.

Chelidonium was used by Rademacher in diseases of the liver. It doubtless has a direct tendency to that organ, and to the entire chylopoetic viscera. Rademacher says: "Chelidonium acts on the internal structure of the liver." It is the remedy for all those diseases caused by a want of action of the liver, as bilious headache, vertigo, neuralgic or sick-headache. It has made some very prompt cures. "It is the remedy for acute or chronic hepatitis; jaundice, from absorption of bile; jaundice, from catarrh of the biliary ducts; jaundice, from gall-stone; jaundice, complicated with pneumonia, and many other common and anomalous hepatic disorders." It is, perhaps, our best remedy in biliary calculi; several cases are reported as having been cured by this article.

¹ Hale's "New Remedies."

Carduus Benedictus-Blessed Thistle.

This is another of Rademacher's remedies. It has a straight root, strong and simple, with few fibers. The stalk is from three to six feet high, upright, stem round, ribbed, arachnoid, woolly, branching half way up. Leaves longish, heart-shaped at the base, lanceolate sheathing; the large radical leaves spreading in a circle, narrowing almost to a footstalk, pinnatified, tipped with sharp spines, the upper ones only serrate, the lower ones more or less folded or recurved; all naked, smooth, almost shining, green, marked with broad white stripes along the veins. The flowers are reddish-purple or white. It grows in waste places in Southern Europe; is found wild in Middle Europe; is very common in England; scarce in Scotland; is seldom seen in America, except when cultivated in gardens. It is an annual plant, and blooms from June to September.

The root, hull and seed are the parts used. The saturated tincture may be made in alcohol (60°), the dose of which will be ten to fifteen drops, three times a day. This, like the preceding article, has a direct affinity for the liver and portal system. In all biliary obstructions it will be found a good remedy. Dr. Leidbeck reports cases of enlargement of the liver, and some cases of gall-stones, with jaundice, that were cured by this remedy. It removes portal congestion and obstructions. It is worthy of more extensive use than it has received.

Chelone Glabra—Balmony, Snake Head.

This is a perennial, smooth, herbaceous plant, with simple erect stem, about three feet high. The leaves are opposite, sessile, oblong-lanceolate, acuminate, serrate, and of a dark shining-green color. The fruit is a capsule. It grows in the United States, in damp soils, flowering in August and September. The flowers vary in color, and resemble a snake's head. The leaves are very bitter, and impart their virtues to alcohol and water. The tincture may be made, saturated, as all tinc-

tures should be, by adding eight ounces to one pint of alcohol. Dose, from five to fifteen drops, every three hours.

Chelone glabra, like the preceding medicines, acts as a direct tonic, and as a cholagogue. I have used this article frequently in very grave cases of dyspepsia, connected with hepatic obstruction, and it never has disappointed my expectations. I have tested it upon my own person, and the effects derived from it were tonic to the stomach, and an increase of biliary material in the stools. This effect was procured by several successive trials. I also have tried it in several cases of indigestion, both stomachic and duodenal, with the like results. It is a very mild tonic, in small doses; in large doses it acts as a cathartic. I have frequently used the chelonin, triturated with sugar of milk, in extreme cases of dyspepsia with the most successful results. Dose, five to ten grains. Dose of the saturated tincture, ten to thirty drops.

Euonymus Atropurpureus-Euonymus, Wahoo.

Euonymus has proven to be one of our best liver tonics; it is also a general tonic to the alimentary canal, and in very large doses, it acts as a cathartic. As a gentle cholagogue, this article acts well. I have a pill partly composed of euonymin, which has given good results as a liver pill, and a gentle aperient for general use. I use the tincture or fluid extract of euonymus with chelidonium and irisin a great deal.

CHAPTER XV.

Diaphoretics.

DIAPHORETICS are medicines that tend to promote the action of the skin. It is the function of the skin to exhale the effete material of the body that is not thrown off through the kidneys and other glands. This function is as important to life and health as that of the kidneys and bowels. There are three kinds of matter thrown off from the surface of the body by the skin: that is, water, in the form of vapor, and volatile matter, as carbonate of ammonia, etc.; the liquid sweat, in the ordinary state of the body, is only given off in sufficient amount to prevent the skin from becoming over-dry. This is secreted by the sudorific glands, the ducts of which terminate in large numbers on the surface, at every part of the body. Then there is an oily matter formed for a similar purpose by the sebaceous glands, which are widely distributed throughout the entire surface of the body.

Diaphoretics only increase the elimination of the aeriform transpiration and the liquid sweat; they act upon these in varying proportions, some more and some less. In considering this class of remedies, we have not only to bear in mind the distinction between these two kinds of diaphoretics, but to note the important relations existing between the action of these medicines and the state of the atmosphere, the condition of the body, and the relative amount of the other secretions of the body.

When the skin is relaxed, the amount of perspiration is apt to be greater. This is the case in that depressed condition of the system which follows an attack of simple fever. In this condition the force of the heart is impaired, the tone of the capillaries is impaired likewise, and by these conditions absorption is favored, and the quantity of fluid in the blood is considerably increased. When the muscular system is relaxed, the sudoriferous ducts are thrown open by the diminished contraction of the involuntary muscular fibers that surround them, the excretion of the sweat is favored, and the watery parts of the blood are poured out through the skin. This condition is also produced by the act of vomiting, and thus most emetics are diaphoretics.

The following groups of medicines tend to act on the system as eliminatives, that is: Salines and diluents, under certain conditions; volatile substances, as ammonia, volatile oils, and alcohol; certain acrid substances, as guaiacum; certain narcotics, as opium and camphor; sulphur, saffron, serpentaria, asclepias and many other articles.

Diaphoretics, like expectorants, are rather uncertain in their action, from the fact that the secretion of sweat, like that of sputa, cannot be considered as a common emunctory. Most of the solid constituents of the sweat are also contained in the urine, and, generally, are more or less excreted by the kidneys, But in special cases, where there is deficient action of the kidneys, the skin is called upon to eliminate effete materials largely from the blood.

And again, in certain conditions of the atmosphere, and in some peculiar conditions of the body, the secretion of sweat is promoted, and opposite conditions of both, tend to retard the action of the skin. Warmth favors the action of the skin by relaxing it, and cold acts in an opposite manner. Warm, dry air, especially when in motion, promotes the aeriform transpiration, by favoring evaporation. Moist air, which lessens evaporation, promotes liquid transpiration. Exercise, with warm clothing, also promotes watery transpiration. But moderate exercise, with a cool surface, favors the action of the kidneys. Sleep favors diaphoresis, and wakefulness, diuresis.

Hot air and hot vapor and hot water, all favor transpiration through the skin.

Diluents, and salines soluble in water, form the first group of diaphoretics. Water taken freely promotes both the action of the skin and the kidneys. Diluent drinks are very great helps to diaphoretic medicines. Salines in small doses naturally tend to pass off through the urine, but in large quantities, they pass off through the bowels. In moderate doses, the skin being kept warm, and the patient in a recumbent position, they promote diaphoresis. The alkaline acetates, citrates and tartrates are all diaphoretics under the above conditions. And they are applicable in rheumatism and gout, and some skin diseases where there is an excess of acid in the blood; for they are converted into alkalies in the blood and readily counteract the acid, and also act as diaphoretics if the body is warm. Ammonia and its salts are very good diaphoretics.

Many plants that contain volatile oils act as diaphoretics, as catnip, balm, horse-mint, pennyroyal and sage, and others. Some acrid gums and gum resins, as guaiacum, mezereon, senega, etc., act as diaphoretics. Many narcotics, as opium, serve as active diaphoretics, but their narcotic and other objectionable properties forbid their general use. Sulphur increases many of the secretions, especially that of the skin. Iodine and other alteratives often act on the skin. Iodine and sulphur have been detected in the perspiration, which proves that these articles are true eliminatives, as they are themselves excreted directly through the glands of the skin.

When copious diaphoresis has been produced, it should be gradually abated, lest the sudden suppression produce catarrh. Washing the body first in warm soda water, to cleanse and open the sudoriferous ducts, always promotes the action of diaphoretics considerably. Many diseases are connected with or directly caused by the suppression or deficient action of the skin. In this state of suppression of transpiration from the skin, too much work is thrown upon the lungs, which finally results in

irritation and inflammation of the lungs. Hence, in the outset, diaphoretics will generally cut short these diseases.

In fevers and rheumatism, the use of diaphoretics is directly indicated to remove from the blood certain morbid materials which increase, if they do not cause, these disorders. The old treatment of fevers a century ago consisted in copious sweating, and was not as erroneous as we are wont to believe. It was founded in reason.

The vapor bath, now almost abandoned, is still the most prompt relief of inflammatory rheumatism, and is a great auxiliary to the treatment of many lung diseases and some forms of fever. Dr. Chambers says that warm blankets, to promote diaphoresis, do more than internal remedies in preventing inflammation of the heart in rheumatism. By very profuse diaphoresis in the incipient stage of many febrile and inflammatory diseases we may produce an artificial crisis, and thus terminate the attack.

In cases where other secretions are in excess, a great increase of the action of the skin may cause the other excessive secretion to cease, as in diabetes and diarrhea. In granular degeneration of the kidneys, where the formation of urine is very small, it is necessary to stimulate the secretion of the skin so that it may, if possible, be able to replace the action of the kidneys, and eliminate the effete materials from the blood.

In many inflammations, local diaphoresis does much good, as warm poultices, warm compresses, packs, etc. In pneumonia, the application of cloths, wrung out of hot water, is very beneficial in the first, and not useless in the second stage of the disease.

I. NAUSEANT DIAPHORETICS.

Most of our emetics, in nauseating doses, produce diaphoresis by relaxing the skin, and are very applicable in many inflammatory cases not attended with gastric irritability or inflammation. In such cases they are contra-indicated and

would prove detrimental. Ipecacuanha is often used as a diaphoretic, both by itself and in combination with opium, in the form of Dover's powders, made by mixing together sixty grains each of ipecac and opium with an ounce of sulphate of potassium. Dose from five to ten grains, repeated every two or three hours.

A better article, however, may be made by triturating the opium with asclepiadin and adding ipecac and pulverized camphor, as follows: Take sixty grains of opium, sixty grains of ipecac, one hundred and twenty grains of pulverized camphor and three-fourths of an ounce of asclepiadin. Dose from five to ten grains, every three hours. This makes a very certain and useful diaphoretic. It is very useful in pneumonia, pleuritis, dysentery, rheumatism, and many inflammatory affections.

A fluid preparation may be made as follows: Take ipecacuanha and serpentaria, each, one ounce; saffron, one ounce; gum camphor, half an ounce; asclepias tuberosa, two ounces; diluted alcohol or gin, one pint, or just enough to cover the articles well; then steep ten days, percolate and run alcohol through it until a pint of tineture is obtained. Dose, fifteen to thirty drops. This is unsurpassed as a diaphoretic.

II. REFRIGERANT DIAPHORETICS.

The saline and ethereal preparations, classed as refrigerants, produce a gentle, relaxing, diaphoretic action, unattended with nausea. They are used to allay febrile excitement, and they reduce the heat of the surface very sensibly, as a rule, when the body is very hot and the pores closed. In such conditions they relax the skin and open the pores.

Ammonii Acetas-Acetate of Ammonia.

This acetate is a very mild and pleasant refrigerant diaphoretic, and may be used in the acme of fevers with good effect, at any time, and in any form of fever. It may be used also in pneumonia and other inflammations. The dose varies from one to four drachms, every two hours.

Potassii Acetas—Acetate of Potassium. Potassii Citras—Citrate of Potassium.

The acetate and citrate of potassium are both efficient diaphoretics, and very applicable in inflammatory rheumatism, as well as in fevers. They are of more general applicability than the salts of ammonia. The dose is from one to four drachms of the liquid preparations, and five to ten grains of the pure salts. The latter should always be given in a large quantity of water.

Potassii Nitras-Nitrate of Potassium.

Nitrate of potassium, or saltpetre, is also a refrigerant diaphoretic, but is liable to irritate the stomach and bowels. The dose is from one to five grains, in water.

III. STIMULANT DIAPHORETICS.

Myrica Cerifera-Bayberry.

The bark of the bayberry root has been a great deal used, combined with cayenne pepper, in the form of composition powders, which are made by adding to one pound of bayberry, one pound of ginger, one-eighth of a pound of cayenne pepper, and three ounces of cloves, well mixed; then add a teaspoonful of this to a cup of hot water, to be taken every hour or two, in colds and coughs.

Capsicum-Cayenne Pepper.

Cayenne, or common red pepper, makes a good stimulating diaphoretic, and is very applicable in the forming stage of colds or catarrh. The dose varies from one to five grains, repeated as often as required. If considerable stimulus is needed, it may be given in doses of five grains, every hour or two. It is best administered in a little cream or sweet milk.

Zingiber-Ginger.

Ginger is a stimulating diaphoretic, and is in general use by the people. It is often combined with other articles of this class, as pepper, etc.

Caryophyllus-Cloves.

Cloves are used as a stimulating diaphoretic, and are generally combined with others of its class.

Aristolochia Serpentaria-Serpentaria.

Serpentaria, already noticed, is a very good stimulating and tonic diaphoretic. I use it a great deal in the form of the compound tincture with opium and ipecacuanha, noticed before. This compound tincture of serpentaria is a valuable diaphoretic.

IV. NON-STIMULANT DIAPHORETICS.

Asclepias Tuberosa—Butterfly Weed.

The asclepias tuberosa, and the A. Syriaca, are very mild, but in large doses they are very certain diaphoretics. Most men use the old, dead root, which is worthless, and then form an unfavorable opinion of the drug, because it was inactive. I make a fluid extract, or an alcoholic tincture of asclepias, by covering the root in alcohol (76°), and letting it stand fourteen days; then straining off the clear tincture. The dose of this is from thirty to sixty drops.

This is a valuable, mild and unstimulating diaphoretic. I use it a great deal, combined with arterial sedatives, in pleurisy and pneumonia. It is a valuable diaphoretic whenever such an article is needed. The crude root may be infused in hot water, or it is better to boil four ounces in a gill of water, slowly, to make a strong tea, and then from one to two ounces may be given every hour or two, until it produces free diaphoresis. The tincture may be combined with tincture of crawley (corallorhiza odontorhiza), equal parts; then one or two drachms will open the skin very promptly.

The asclepias should be gathered in the Fall, and just dried, then crushed and tinctured, and it will be found to act promptly. It is valuable only when prepared from the fresh root.

Asclepiadin.—Asclepiadin is the essential medical principle of the asclepias tuberosa. It has diaphoretic properties, which are not unimportant, but its specific tendency is to act upon the serous tissues. In pleuritis, this article has been regarded almost as a specific, and really approaches this character in that disease. In acute stages of pleuritis, where the arterial excitement runs very high, I usually premise by giving veratrum and aconite, or combine these with asclepiadin. This is a prompt remedy in pneumonia, combined with veratrum and aconite, and I have found nothing better.

In all diseases whose seat is in the serous tissues, this will be found a very potent remedy, and one that we may depend on with full confidence; one thing to recommend it the more highly is, that it is so perfectly harmless to the system. It has a diaphoretic tendency, and some expectorant virtues, hence its value in all pulmonary diseases. As an expectorant, it may be combined with sanguinarin, or senega, in due doses of each, in syrup, etc. As a diaphoretic, it may be combined with the compound tincture of serpentaria, or the tincture of crawley, and given every one or two hours. In peritonitis, pericarditis, and acute inflammations of all the serous tissues, it is a valuable remedy and should never be overlooked. The fluid extract and essential tincture are also very reliable, and the dose is from half a drachm to one drachm. The dose of asclepiadin is from one to five grains.

Corallorhiza Odontorhiza—Crawley, Coral Root, Dragon's Claw.

Crawley is a leafless plant, with coral-like root stalks. It is a native of the United States, growing about the roots of trees, in rich woods, from Maine to Florida, and flowers from July to October. The entire plant is destitute of verdure. The root is the part used; it resembles cloves or a hen's claws; it has a strong nitrous smell, and mucilaginous, astringent and slightly bitter taste.

Medical Properties.—This is one of the most powerful diaphoretics in the list. It is, however, so scarce and so expensive that it is not in general use. In large doses it is sedative, and in moderate doses it is diaphoretic; and, like asclepias, it produces diaphoresis without exciting any part of the system. It is very valuable in typhoid fever, where the skin is dry and hot, and also in other fevers. Combined with caulophyllum, it is a good remedy in amenorrhæa and dysmenorrhæa, and it is unsurpassed in after-pains and a stoppage of the lochial discharge, and is a most excellent remedy in the earlier stages of child-bed fever.

The dose is from three to five grains, every one or two hours. The essential tincture is made by covering the crushed root in alcohol. Dose, one to five minims every one or two hours. The root soon loses its strength.

Pilocarpus Pennatifolius-Jaborandi.

The tincture of the fresh plant may be given, in doses of one to five minims every hour, where the skin is hot and dry. It is costly, but in cases of catarrhal fever, or in pneumonia, to alternate aconite or veratrum, it soon gets up a moist and soft state of the skin. It is a mild diaphoretic, but it also soon establishes excretion from both the skin and kidneys. These properties render it an aid to other remedies in diseases calling for diaphoretics.

It may be given in the form of a powder, but as it soon deteriorates, it is best to tincture it, eight ounces to one pint of alcohol (76°), and then it will keep. It is a valuable diaphoretic, and as it is non-stimulating, is often applicable in fevers.

Eupatorium Perfoliatum-Boneset, Thoroughwort.

Besides the most positive tonic and cholagogue powers, boneset also possesses very marked diaphoretic properties. For this purpose the warm infusion is best. In epidemic influenza, the warm infusion is a very valuable emetic and diaphoretic, and in the declining stage of remittent and intermittent fever we have no better remedy to promote the action of the skin; and at the same time it possesses no mean antiperiodic properties. Its antiperiodic properties seem to depend upon its eliminating power. It doubtless stimulates the skin, and thus aids in removing the malaria from the blood very rapidly.

The cold infusion may be given as an antiperiodic, but the warm infusion is best as a diaphoretic. The dose is from two to four ounces, repeated every hour. The dose of the powder is from ten to twenty grains. The dose of the saturated tincture of the fresh herb is from twenty to sixty drops. The dose of the extract is two to four grains. The saturated tincture is best as an antiperiodic, and the infusion the best as a diaphoretic. It should be used in a fresh state, as it soon loses its strength. It grows very plentifully along the streamlets in the Southern States.

Carthamus Tinctorius-Dyer's Saffron, Safflower.

Saffron has long been used to restore the menstrual flow, when suppressed by cold; and besides this property, it possesses marked diaphoretic powers. It may be given in the form of infusion, in doses of one or two ounces; the tincture, however, is most convenient for general use. I use it combined with opium, camphor, and serpentaria, in the form of Beach's diaphoretic drops (see American Dispensatory). This compound, with tincture of asclepias added, is very certain to act on the skin, under all ordinary circumstances. The compound tincture of saffron and opium may be given in drachm doses in a strong infusion of asclepias, and repeated every three hours or oftener. This is a favorite diaphoretic in colds, pneu-

monia, pleuritis, rheumatism, and many other inflammatory diseases.

The tincture may be made by adding four ounces of the saffron flowers to a pint of diluted alcohol. Dose, one to two drachms, every hour or two. The infusion is made by boiling one ounce of the flowers in half a pint of water. The dose is one or two ounces. This is an expensive article, but it is a very active diaphoretic, and is indicated at any time that such an action is required.

Salvia Officinalis—Sage.

Sage exerts a direct tonic influence over the skin, and becomes a very appropriate remedy in cases where the skin is torpid in the performance of its function. It does not relax the system, and hence it is not an active diaphoretic where the skin is dry and harsh, but if preceded by some relaxing remedy, the sage will act finely. It is given in the form of warm or cold infusion, freely. I very often unite it with catnip, balm, or pennyroyal, and find that this combination acts well.

Hedeoma Pulegioides-Pennyroyal, Tick Weed.

This article, like sage, is a tonic to the skin, and increases its action in all cases of torpidity arising from want of tone. The warm infusion, taken freely, not only promotes the action of the skin, but also restores suppressed lochia, and excites the menstrual flow, when recently checked by cold or damp feet; for which purpose the warm infusion should be used freely in connection with the warm hip bath. Balm may be used, also, as a mild diaphoretic, in the form of infusion, taken freely, the body being kept warm. Catnip, ground ivy, ale hoof, nepeta glechoma and horse-mint are similar in action. They all promote the action of the skin.

Veratrum Viride-American Hellebore.

Veratrum, besides its direct sedative effect, has a very powerful diaphoretic influence upon the skin. It is well known to

all physicians that, while the skin is hot and dry, or when there is a high fever, the ordinary diaphoretics will not act; but veratrum, by reducing the pulse and relaxing the skin, will prove an active diaphoretic in pneumonia, fever, rheumatic fever, and in many local inflammations. In the inflammatory stage of pleuritis and pneumonitis, as well as in acute rheumatism, veratrum is the only article that can be trusted as a diaphoretic. It not only reduces the heart's action, but also acts on the skin.

When made from the fresh root, and given in proper doses, veratrum excels all other remedies in giving freedom to the circulation, and removing obstructions, not only to the circulation, but also to transpiration through the skin. For this purpose the article should be used in small doses, frequently repeated, as it acts too much as a depressant in large doses, and, if long continued, will produce congestion. In small doses it stimulates the entire vascular system, and of course acts as a diaphoretic. Dose from one to three drops, every one, two or three hours, as demanded.

V. ALTERATIVE DIAPHORETICS—ELIMINATIVES.

We have already treated of alteratives, or catalytics, which are supposed to eliminate certain morbid materials from the blood through the various excretory organs of the body; but there are some of this class that seem to act principally through the skin, and hence very properly come under the head of diaphoretics.

Sarsaparilla—Sarsaparilla.

Sarsaparilla is of the natural order Smilaceæ, twining, prickly shrubs of Mexico, Guatemala, and the warm countries of South America. Honduras, perhaps, affords the best sarsaparilla. Alcohol and water extract the virtues of this root.

Effects and Uses.—Sarsaparilla has a mild diaphoretic effect upon the system, and beyond this we do not know its physiolog-

ical effects. In large doses it occasionally purges and vomits, but in small doses it is well known to remove various morbid products from the blood; it seems to do so through its direct action upon the skin, as it does not appear to increase the action of the kidneys. In this way it is a remedy in rheumatism, syphilis, and many skin diseases.

We cannot account for the observed medical effects of sarsaparilla in any other way but as a diaphoretic. All catalytics must eliminate from the blood certain morbid materials upon which the disease depends. Otherwise, they cannot be alteratives or catalytics proper. And to be such they need not act with that vigor that characterizes the efficiency of the more positive diaphoretics; but in addition to a gentle action, these alterative diaphoretics have the power to combine with or in some way to disengage the morbid materials in the blood and remove them through the skin. They thus differ from other diaphoretics, which only act on the skin to remove the common constituents of the worn-out tissues with the watery elements of the sweat, without removing those morbid materials that exist in certain diseases. Sarsaparilla acts very gently through the skin, and removes the morbid materials upon which certain diseases depend. It is given in the form of a syrup. Dose, half an ounce to one ounce. The infusion is made by slowly boiling one pound in a quart of water. Dose, four to eight ounces, three times a day. Dose of the fluid extract, thirty drops.

Aralia Nudicaulis-False Sarsaparilla.

The aralia nudicaulis, or small spikenard (natural order Araliaceæ), is a small perennial plant, indigenous to the United States. It possesses diaphoretic and alterative powers similar to sarsaparilla, and may be given in its stead. The saturated tincture is a good form for administration, and may be made by covering the freshly dried root in alcohol. Dose, thirty to forty, or even sixty drops, every three or four hours.

The A. racemosa or American spikenard has the same prop-

erties, and may be prepared and given in the same way as directed for the above.

Aralia Spinosa-Prickly Elder.

The prickly elder or angelica tree grows from the State of New York to Florida, but is much more common, and attains a much larger size, in the Southern States. In the Gulf States, near the shore, this, or another species, perhaps the same, is found to attain thirty feet in height. The leaves and the stalk are bestudded with sharp spines or briers. It flowers in June. The bark of the tree and root are medical. This article is much more active as an alterative diaphoretic than the other two species just described. It is well suited to cases of rheumatism of a chronic character. The tincture is the best preparation. It is made with eight ounces to one pint of alcohol. Dose, sixty drops.

Guaiaci Lignum — Guaiacum Wood. Guaiaci Resina — Guaiac.

Guaiac is a resin, obtained from the guaiacum officinale by spontaneous exudation, by incision, dry heat, or by decoction of the chipped wood. It has a slight balsamic odor, with a hot, acrid, burning taste. It is soluble in alcohol.

Medical Effects.—Guaiac is a stimulating diaphoretic alterative, and in large doses, is purgative. In chronic rheumatism it is a remedy of considerable celebrity. It is recommended in syphilis, but it will not do to depend on in that disease. As a stimulating diaphoretic, it is a good remedy in amenorrhœa and dysmenorrhœa. I have often cured cases of the above with this article. In menstrual irregularities, I use the ammoniated tincture of the gum guaiac.

As a stimulating alterative diaphoretic I use the strong tincture, made by adding two or three ounces to the pint of alcohol. The dose of this tincture will be from one to two ounces every three hours, in sweet milk. The dose in powder

is from ten to thirty grains every four hours, in syrup or milk. In rheumatism I often combine this with macrotis racemosa, or black cohosh, equal parts of the tinctures, and give from thirty to forty drops, every three or four hours. This makes a good alterative in this disease.

Daphne Mezereum-Mezereon.

Mezereon is the bark of daphne mezereum (natural order Thymelaceæ), a shrub of Europe, growing to the height of four or five feet. It has at first a sweetish taste, afterwards highly acrid. It yields its virtues to alcohol and water.

Medical Effects.—In large doses, the mezereon is very acrid, but in medical doses it promotes the action of the skin and kidneys. It has long been employed with sarsaparilla in the form of the compound decoction as an alterative diaphoretic in rheumatism, syphilis and skin diseases. The fluid extract is a good preparation for use, and may be given in doses of ten drops, three times a day. The essential tincture may be made by adding eight ounces to one pint of alcohol (76°). Dose, ten to twenty drops every three hours, well diluted.

Sassafras Officinalis—Sassafras.

The sassafras officinalis (natural order Lauraceæ) is an indigenous tree of medium size. The bark of the root is used. It contains an oil that is much used in liniments, and possesses remarkable virtues.

Effects and Uses.—Sassafras is a very mild alterative diaphoretic, and is used generally with other articles of its class. The dose of the oil is from two to ten drops. It is aromatic, and is used for flavoring. The fluid extract is the best form.

Stillingia Sylvatica-Queen's Delight, Yaw-Root.

Stillingia, already noticed, is an indigenous plant (natural order Euphorbiaceae), with a perennial root, growing to the

height of two or three feet. It is found in the Atlantic States, growing in gravelly and sandy soils. Age destroys its medical virtues, hence it should be tinctured in its green state. It contains an oil.

Medical Uses.—Stillingia is an active alterative diaphoretic, and influences the lymphatic system very favorably. Says Prof. John M. Scudder: "I believe it to be more especially useful in those cases where there is predominant affection of mucous membranes, and secondly, where the skin is involved." It is a valuable remedy in secondary syphilis, scrofula and skin diseases. It seems to act on the skin directly, increasing its secretory function, and eliminating morbid materials from the blood.

This article is often compounded with other articles in the form of compound syrups, made in boiling water, and hence very feeble or worthless. The fluid extract, properly made, is a good article. The saturated tincture of the green root is the only reliable preparation. It is made by covering the fresh root, crushed, in alcohol. Dose, from fifteen to thirty drops, three times a day. Its other properties have been noticed.

Sulphur-Sulphur, Brimstone.

Sulphur has been used in medical practice for many years, and notwithstanding that it has been much abused and misused, yet, as an alterative diaphoretic, it fills a place in the treatment of some cutaneous affections. It may often be alternated with other articles of this class with advantage. It produces centrifugal circulation, and thereby aids the removal of certain morbid materials from the blood. It is not as active as some other remedies of this class, but it has its place in certain morbid conditions of the system. It was once a popular remedy in rheumatism, generally combined or alternated with guaiac resin; and it may be of some benefit in such cases as arise from sudden suppression of transpiration from cold, damp air. Small

doses, once or twice a day, will ward off the attacks of catarrh in many constitutions of a strumous habit.

It has long been a remedy in itch, but is not as much used now as sulphurous acid. Homœopathic physicians use sulphur in a great many affections, and they say, with great success. It is used by allopathic physicians, combined with cream of tartar, as a mild aperient in piles. I have known persons to use it for nervous headache, and they say it will ward off the attacks if taken regularly for some time. I think its proper place is where we have a centripetal circulation, and catarrhal state of the mucous tissues from that cause. I have known it do good service in such conditions. Dose, ten to thirty grains.

Solanum Dulcamara—Dulcamara, Bittersweet, Woody Nightshade.

This is a woody vine, with a shrubby stem several feet in length, of an ashy-green bark. Leaves acute, and generally smooth; lower one cordate, upper ones hastate. The flowers are purple, and the fruit a scarlet, juicy and bitter berry, which hangs on the vine when the leaves have fallen. It is common in Europe and America, growing in moist situations, and around old walls, about hedges and thickets; flowering in June and July. The fruit ripens in autumn. It yields its virtues to water and alcohol.

Dulcamara is diaphoretic and alterative, but in over-doses, it is narcotic, with some diuretic powers. It seems to have a tendency to the cutaneous surface, and hence, increases centrifugal circulation. It has been used in many skin diseases, as lepra, ptyriasis, scrofula, etc. Some writers use it in old, indolent ulcers, giving it internally, and applying an ointment to the ulcers. It doubtless increases waste and excretion, and will do valuable service in cases where these are deficient. In very large doses, it affects the cerebro-spinal centers, and might be pushed too far in this direction.

In those cases where we have centripetal circulation, evinced by a purplish color of the hands and feet, with coldness of the surface, this article will do good service, if given in small doses; that is, from one to ten drops of the tincture, made by adding eight ounces of the fresh twigs to one pint of alcohol (70°). When old it loses its virtues.

CHAPTER XVI.

Diuretics.

DIURETICS are medicines that have an affinity for and tend directly to increase the secretory function of the kidneys. By the action of the kidneys a very large amount of the aqueous material of the blood is excreted every day. This water is first absorbed by the stomach and intestines and thrown into the blood, and the skin and kidneys throw it off with the effete materials of the worn-out tissues of the body.

The necessity of this excretion is of a two-fold character. In the first place it is necessary that the blood be kept down to its normal standard, as regards the quantity of water, and that all surplus fluid, which daily accumulates, should be removed. Secondly, this water is required in the urine, as a vehicle, to hold in solution certain soluble materials which are continually forming in the blood, or are being received into it, but which are ultimately to be excreted from the blood by means of the kidneys. These effete materials are in the form of a variety of salts and a number of nitrogenous substances, as urea, uric acid, etc. These salts, last-named, are formed in the blood by the gradual decomposition of the animal tissues through which it flows. The failure in the kidneys to separate these salts from the blood finally produces uremic poisoning of the brain.

The kidneys are the chief outlets to the excess of watery elements of the blood, and also to such mineral salts as are soluble in water. Some mineral salts, as iron, silver, lead and copper, are astringents, and tend to diminish rather than to increase the quantity of urine. But such is the certainty in the ordained conservative power of the kidneys that it is quite difficult to

diminish their excretion. Some saline medicines act as diuretics under certain conditions of the system. So do acids and alkalies, and many vegetable compounds, which will be noticed hereafter in their place. The soluble substances that thus pass off in the urine, and act on the kidneys, are many in number, but they are somewhat uncertain in their action, for several reasons.

The amount of urine depends upon the quantity of water thrown into the blood, so that when there is a deficient supply of water in the system, it is impossible for more urine to be formed. This depends again upon the pressure of the circulation. When this is too great it cannot go on, and the urine is diminished thereby; and a large quantity of water passing out of the blood through some one or more of the other secretions, as that of the skin and bowels, directly hinders diuresis, and when the action of the skin and bowels is deficient, the action of the kidneys is materially increased.

Hence, in cold and damp conditions of the atmosphere, the kidneys are more active; and any causes that impede the circulation, as congestion of the liver or kidneys, or of the whole venous system, on account of obstruction in the heart (conditions which produce dropsy), tend to diminish the quantity of the urine. Hence, certain medicines, by favoring the removal of one or more of these hindering causes, act as indirect diuretics.

The exalted action of the heart in fevers and inflammations, causes such a pressure on the vessels as to retard absorption, and thereby hinders the action of the kidneys. A hard bounding pulse and a hot skin lessens the tendency to diaphoresis and in a lesser degree to diuresis. But relaxation of the surface and the circulation favors absorption, and tends to increase the action of the skin and kidneys. Hence, veratrum, digitalis and aconite, or purging, or anything that diminishes febrile reaction, will favor the action of the kidneys.

In diseases of the heart, attended with congestion, digitalis,

by diminishing the force of the heart, lessens congestion, and thereby favors absorption, and promotes diuresis; hence its great value in all cases of dropsy connected with, or originating from disease of the heart. When, however, the obstruction is in the portal circulation, a hydragogue cathartic, combined with a cholagogue, will be found to materially assist other suitable remedies. Tobacco and lobelia act in the same way as digitalis; that is, they promote diuresis by lessening the force of the heart; tobacco acts with especial power in this direction.

All true diuretics pass into the urine, but there are many medicines which pass into the urine that do not act as diuretics. Many of the mineral salts pass out of the blood through the kidneys, and yet do not increase their action.

There are four groups of diuretics: I. Water, and soluble mineral substances, as acids, alkalies, and salines under certain conditions. II. Various acrid materials. III. Alcohol and ethereal liquids. IV. The minerals that increase all secretions. Diluents, to some extent, promote the action of the skin and kidneys under ordinary conditions.

A proper quantity of water is required with every dose of a diuretic medicine, and the larger the quantity of the water the more powerful will be the action, except in cases of dropsy, where the object is to eliminate an excess of fluid already in the system, which object would be defeated by the introduction of an increased amount of fluid into the system. Diuretics, then, should be given in a small quantity of fluid, where the object is to carry off an excessive quantity of fluid already in the system.

The free acids, both mineral and vegetable, with the exception of sulphuric acid, act as diaphoretics to some extent. The mineral alkalies and their salts also act as diuretics; but as these mineral acids and alkalies have an important action in the blood, and by altering the reaction of the urine, tend to produce in it deposits of different kinds, they cannot invariably be employed as diuretics without injury. Salines may be employed more

safely than acids generally, but they should be given in moderate doses, lest they act as cathartics.

When an alkali and a diuretic are required, such an article as the acetate of potassium is often preferable to a simple alkali. It is also better in some skin diseases and in rheumatism. In both cases, it either acts as a diuretic or diaphoretic, and corrects the acid state of the blood, being excreted in the form of an alkali. In rheumatism, it corrects the acid state of the urine, and materially aids in the cure of the disease. Many of our remedies that have been known to cure rheumatism, do so by their diaphoretic, diuretic, or alkaline action. In all of these ways the excess of acidity of the blood may be corrected. Again, some anti-rheumatic remedies, as macrotis, act as tonics, and prevent the further accumulation of acid in the system.

The acrid diuretics act with great force upon the kidneys. Some of them, as juniper, turpentine, mint, cajuput, copaiba, horse-radish, and some others, contain a volatile oil. There are other acrid diuretics which contain a vegetable principle, as broom, chimaphila, colchicum, digitalis, squills, eupatorium purpureum, apocynum cannabinum, and nitric ether, that act as diuretics and diaphoretics. Wine, when pure, and beer, when taken in large quantities, act as diuretics, but they load the blood with acids, and produce gout and rheumatism if continued. Gout is very common in Europe from the excessive use of wine and beer.

Iodine and iodide of potassium are diuretics, particularly the latter, and it is this property that makes it a remedy in rheumatism. Doubtless it is its diuretic property that renders it so far superior to iodine in eliminating syphilis from the blood. Many of our alteratives possess either diuretic or diaphoretic properties; hence, possessing the power to set up catalysis in the system, they separate the morbid material from the tissues, and convey it out through the kidneys and skin.

Diuretics may be given to excess, and may be made to produce congestion of the kidneys; then they defeat the object for

which they are given; for congestion of the kidneys, like other glands, is followed by impaired function. Turpentine and cantharides, given in over-doses, produce dangerous strangury, or a total suppression of urine for a time. Diuretics are not of extensive application in the treatment of disease, but have a limited office to perform. They are of somewhat uncertain action; but in certain disorders they are of great utility, as dropsy, rheumatism, and some blood disorders. They are required to eliminate solid materials from the blood, and to promote absorption, by diminishing the fluid contained therein.

In cases of habitual deposits of the lithates, or of the phosphates, or other solid materials in the urine, a very good way of obtaining a solution of these deposits and preventing injury, is to increase the amount of the fluid part of the urine. Water becomes a medicine in this condition, and may be given freely with other diuretics. In gout and rheumatism, diuretics are of great service by promoting the excretion of uric and lithic acid from the blood; the alkaline salts and alkalies are of especial service in such cases. Diuretics may be used as eliminatives in fevers and some other disorders, which frequently, if left unaided to the native powers of the system, are seen to terminate in very profuse diuresis or diaphoresis.

In cases of dropsy, from congestion of the liver, kidneys, or the general circulation, diuretics are of signal service. As we have stated before, this congestion and pressure on the veins diminishes the amount of the secretion of the urine, and thereby increases itself and the effusion of fluid. These same causes very much hinder the action of diuretics, hence the great difficulty in curing dropsy thus originated.

When we can largely increase the secretion of the kidneys, the pressure on the venous system will be diminished, and absorption of the dropsical effusion is the result. Some writers even advise the use of diuretics in Bright's disease; but in most cases of that disease, and other cases of renal congestion, it is safer to depend on the liberal use of diaphoretics and such remedies as tend to decrease the renal congestion.

In heart disease, or congestion of the liver, with obstruction, we may sometimes gain our point by combining other diuretics with digitalis. These tend to remove the cause by which their diuretic action is hindered; especially is this the case with digitalis. In some cases we can produce a much more copious and effectual drain of the effusion from the blood by the action of a brisk hydragogue cathartic, as jalap and cream of tartar or elaterium.

When our object is solely to remove effusion of fluid from the tissues, the diuretics should not be given in large quantities of water. This should be done only to remove solids from the urine, as in cases of calculi. It is often best to combine several diuretics, which increases their action. Purgatives frequently increase the action of diuretics.

I. SALINE DIURETICS.

Potassii Bitartras—Bitartrate of Potassium, Cream of Tartar.

Bitartrate of potassium, or cream of tartar, in small doses, say twenty to thirty grains, every one or two hours, often acts efficiently as a diuretic. Combined with other diuretics, as nitre, in the form of the sweet spirits of nitre, it acts very well upon the kidneys, and, alternated with digitalis and apocynum cannabinum, it is most positive in action. It is also very acceptable to the stomach when sweetened. It should not be given in too large a quantity of water, lest it purge instead of passing off through the kidneys as a diuretic.

Potassii Acetas-Acetate of Potassium.

The acetate of potassium is one of our mildest and most efficient saline diuretics. In cases of dropsy, connected as they frequently are with dyspepsia, cream of tartar does not agree with the patient, nor does it act well under such circumstances. In all cases of this nature, however, the acetate of potassium will be found to act very promptly, and to be acceptable to the stomach. This salt is readily prepared fresh, by saturating bicarbonate of potassium with acetic acid. The dose of the fluid preparation is from one to two drachms, repeated every one or two hours. The dose of the powder is twenty grains.

Sodii Acetas-Acetate of Sodium.

The acetate of sodium is prepared from crude pyroligneous acid, which is saturated with cream of lime, and the solution of acetate of calcium thus formed is decomposed by sulphate of sodium; repeated solutions and recrystallization, with fusion, furnishes the pure salt in the form of a white crystalline powder, in striated prisms. It dissolves readily in water.

Effects and Uses. — This salt acts very much like the acetate of potassium, but it does not as soon deliquesce in the air. The dose is about the same as of the last-described—from twenty to sixty grains in half a glass of water. This is, like the acetate of potassium, one of our most efficient diuretics in lithic deposits in the urine, and a very valuable diuretic in some cases of dropsy, especially those caused by, or connected with dyspepsia; for, while this salt, like the acetate of potassium, increases the flow of urine, it also diminishes the amount of the uric acid and the urea in the blood. It is also very valuable in gout and rheumatism, and, like colchicum, it may check the formation of uric acid in the system. This, or the acetate of potassium, is a favorite diuretic with me, especially where the patient cannot take cream of tartar on account of excess of acid in the system.

II. SEDATIVE DIURETICS.

Digitalis Purpurea—Foxglove.

Medical Effects.—The sedative effects of foxglove have already been spoken of under that head. As a diuretic, in moderate doses, and frequently repeated, digitalis increases the

secretion of the urine by relieving the obstruction to the circulation. Many cases of dropsy have their origin in disease of the heart, causing enfeebled action of that vital organ. Some are connected with a general nervous debility, causing a very great enfeeblement of the heart's action, and stasis of the capillary system thereby. This state of torpor, particularly of the capillary system, suffers effusion to take place in the cavities, or in the cellular tissue.

Digitalis acts as a cardiac tonic, giving force and regularity, and thereby diminishes morbid frequency of the circulation. Its diuretic action is rather indirect than direct, and is most marked where the above condition of the circulation exists. It is one of our best diuretics in dropsy, connected with disease of the heart and liver. In dropsy from other causes, it is not so prompt as some other diuretics. As it increases the elimination of solids in urine, it is a good remedy in gout. Its toxic effects are similar to those of tobacco and lobelia; it should therefore never be given in over-doses, or too long continued.

I have often resorted to digitalis in cases of dropsy from dilatation of the heart. In such cases, there is already great irritability and failure in the heart's action. Digitalis, by increasing the force of the cardiac contractions and abating the regular movements of this organ thus diseased, always proves useful. We also have dropsy from valvular disease, and aortic constriction, attended with feebleness of the heart's action. Here digitalis will act well, as in the other cases described. It is one of our most reliable remedies in dropsy, especially that variety connected with, or caused by disease of the heart, as it is a valvular cardiac regulator, and a most efficient diuretic.

Digitalis is best given in a saturated tincture, made by adding eight ounces to one pint of alcohol (76°). The dose will be from five to ten drops, repeated every three or four hours. Prof. Scudder says: "There is no cumulative effect of digitalis when given in small doses." One reason why different writers report such varying effects from the use of this medicine is

because of the uncertainty in strength of the common tincture. No tincture made in the old way can have uniform strength. The drug is often old and worthless before it is tinctured; hence, the failure in its action. It should be made from the fresh herb, and saturated; then we may depend on it.

Apocynum Cannabinum—Milkweed, Indian Hemp, Dog's-Bane.

The apocynum cannabinum (and perhaps the A. androsemifolium is similar in its action) has a direct tendency to remove dropsical accumulations in any cavity or tissue of the body. It is specific in its action upon the blood vessels in that atonic state that gives rise to exudation of serum so rapidly as to result in dropsy.

I am in the habit of employing this article, with digitalis. in cases of dropsy from cardiac disease, and find this combination very efficient in removing the accumulation from the system. In fact, apocynum is a positive remedy for all ordinary cases of dropsy, whether it is a mere cedema, ascites, anasarca or hydrothorax, where there is no obstruction of the circulation from cardiac disease, or where there is no inflammation of internal structures. This article alone is not a positive remedy where there is heart disease, nor would it do to depend upon where there was structural disease of the liver. But in these cases, after the use of other appropriate remedies for those lesions named, then the apocynum will do its work admirably. It acts silently but certainly. It strengthens the circulation, increases absorption, and thereby increases the flow of urine very rapidly in most cases. It is applicable in all passive forms of dropsy, as it possesses marked tonic effects. It may be given in cases of dropsy attended with prostration, where some other diuretics are contra-indicated.

In some cases of chronic metritis, with uterine leucorrhoa, it is a good remedy, especially if the discharge be attended by excess of watery elements from the uterus. In some cases of

profuse menstrual discharge of a very thin watery fluid, apocynum is a good remedy. In all conditions of the system attended with excess of serum in the blood, apocynum may be relied upon as an active diuretic. It not only increases the secretion of the kidneys, but has the very remarkable power of restoring the lost equilibrium between the absorbents and the exhalants, between endosmosis and exosmosis.

This article has been used in the form of a feeble tincture or an infusion, neither of which is to be depended upon. I use it in the form of an essential tincture, made by adding six ounces of the freshly dried root, or eight or ten ounces of the green root, to one pint of alcohol. The dose is from five to fifteen drops, and may be repeated every three or four hours as a diuretic. In cases of dropsy with cardiac disease, I often combine the tincture of this article with digitalis, equal parts, and give from ten to twenty drops every three hours, and find that this compound acts admirably.

Apocynin.—Apocynin is the active principle of apocynum cannabinum. It is a very active tonic in small doses, say one-eighth to one-sixth of a grain, three times a day. In larger doses, say half a grain, it acts as a diuretic, and if continued every three or four hours, for a day or two, it is an important remedy in dropsy. It does not increase the quantity so much as the specific gravity of the urine. In large doses it acts as an emetic, and in smaller doses than is necessary to produce emesis, it is a mild aperient, but not so certain in its action as the crude article. In very large doses, continued for some time, it depresses the action of the heart, rendering the circulation irregular, and from this fact it is possible that it could be continued until it would produce serious consequences.

The diuretic effects of apocynin hasten disintegration of the nitrogenous elements of the body, liberating the phosphates and conveying them off through the kidneys. Hence, in all diseases where the system is loaded, as it is in some cases of fever, especially typhus and typhoid fever, with these poisonous nitrogen-

ous elements, apocynin becomes an appropriate remedy. In the latter stages of marsh fevers, where they have been neglected and suffered to continue too long, it is frequently the case that, from a retention of those elements, the brain becomes affected by uric acid, and delirium results. Here, also, apocynin may be used with benefit. The usual dose is from one-fourth of a grain to one grain, pro re nata.

Scilla Maritima-Squills.

Squills, in small doses, promotes the secretion from the mucous membranes, particularly those of the air-tubes. In larger doses it acts on the kidneys, but in excessive doses, it produces nausea, vomiting, and sometimes purging; and if continued in excessive doses, it acts as an acro-narcotic poison. Sometimes twenty-five or thirty grains have proved fatal, hence it has never been a favorite diuretic with me.

Its toxic effects are violent vomiting, purging, abdominal pains, bloody or suppressed urine, reduction of the pulse, with collapse or convulsions, and death. The antidotes are opiates and demulcents, after the stomach pump has been used; then, if collapse ensues, stimulants should be used perseveringly. The dose of squills is from half a grain to one grain, as an expectorant or diuretic.

It is preferable in the form of vinegar, or acetum scille, made by adding four ounces to two pints of diluted acetic acid. The dose of this is twenty to thirty drops. The syrup is made by dissolving one pound of sugar in a pint of the vinegar of squills. The dose is one drachm, repeated every three hours. As a diuretic, it is safest to use it on the surface; an ounce or so may be rubbed in every three hours over the abdomen. Parched squills are much milder in action.

Colchicum Autumnale—Colchicum.

Colchicum autumnale, or meadow saffron (natural order Melanthaceæ), is a small, biennial, bulbous plant, growing in the moist meadows of England and other temperate parts of Europe.

The corms and seeds are the parts used. Colchicum corms or seeds yield their virtues to vinegar and alcohol, but alcohol is the best menstruum.

Physiological Effects. — Colchicum is a local irritant, in large doses. In moderate doses, internally, it stimulates all the secretions, but in overdoses, it produces nausea, vomiting, purging, and generally a reduction of the pulse. In very large doses, it is an acro-narcotic poison, producing fatal reduction of the circulation. Its antidotes are tannin, opiates, demulcents, and stimulants. It should never be given in large doses in any disease.

Medical Effects.—Colchicum is not uniform in its effects upon the kidneys; I could never procure from it any very active diuretic effects. As an antilithic, it is very certain in its action. In gout and rheumatism, it is an old and reliable remedy. I now use the essential tincture made by adding six ounces of the seeds or the corms to one pint of alcohol (76°). Dose, from five to fifteen drops; dose of the fluid extract, five to ten drops.

Equisetum Hyemale—Scouring Rush.

The fresh plant is used in the form of a fluid extract or tincture. Dose of the tincture, from ten to sixty drops. This preparation, in ten drop doses of the saturated tincture (normal tincture), is a most valuable remedy in irritable bladder, and is quite soothing in cases of calculous affections, dysuria with pain after urinating, also in suppression of urine.

It is a good addition to kava-kava, cubebs, and copaiba, in gonorrhœa. In large doses it acts on the kidneys, and aids other diuretics in removing the serum in dropsy. It greatly allays irritability of the bladder, and increases the action of the kidneys, when given freely, every hour or two through the day. An infusion may be used, where the plant can be procured.

Erigeron-Fleabane.

There are three varieties of the officinal erigeron: The E. canadense, or Canada fleabane, E. heterophyllum, or various-

leaved fleabane, and E. Philadelphicum, or Philadelphia fleabane (natural order Asteraceæ). These herbaceous indigenous plants grow to the height of two to six feet, with ovate or lanceolate toothed leaves, and white, blue, or purple flowers. The leaves and tops are officinal. The Canada erigeron possesses active hæmostatic properties, and is a very valuable remedy in uterine hemorrhage; dose, five to ten drops.

The various-leaved, and Philadelphia fleabane, known as scabius, are very common plants all over the United States, and have an aromatic odor, and a bitterish taste. They are diuretic, and have long been used as such in dropsy and nephritic affections. They may be used in infusion or decoction, in doses of one or two ounces every one or two hours. In dropsy, erigeron may be combined with juniper berries, or eupatorium purpureum, tinctured in gin, and taken in doses of half an ounce to one ounce every two hours. A fluid extract, made from the freshly dried plant, would be a convenient and reliable preparation. The saturated tincture will also be found reliable, in doses of one or two drachms. As it grows very plentifully, the infusion may be used.

Leontodon Taraxacum-Dandelion.

Taraxacum dens-leonis (natural order Cichoreæ), is a small herbaceous, perennial plant, common to most parts of the world, and growing abundantly in the United States. It has bright-green leaves, deeply notched, and a fusiform root. The flowers are of a golden-yellow color, on flower stems about six inches high. The root is the officinal part, and should be gathered in autumn. It abounds in a milky juice while fresh, in which state it should be made into a tincture or extract, as it soon loses its virtues. Its medical property depends upon a bitter crystallizable principle, called taraxacin or leontodin, and dissolves in boiling water, alcohol, and ether; hence, alcohol and water, in the form of diluted alcohol, are the best menstruums. The infusion may be used.

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Medical Effects.—Taraxacum is diuretic, tonic, and slightly aperient, with a special tendency to the liver. It is therefore an appropriate diuretic for dropsy, associated with or caused by disease of the liver. As a tonic, it is valuable in those cases of dropsy accompanied with indigestion. As a diuretic, it is not as active as other articles of that class, yet it has its place. The essential tincture is made by covering the fresh root in alcohol (60°) ; dose, one to two drachms.

Juniperus Communis-Juniper.

The berries of juniperus communis (natural order Pinaceæ) are the fruit of an evergreen shrub of Europe, naturalized in the United States. The berries contain an oil (which is volatile) that holds its medical property. It is rather heavy on the stomach.

Medical Properties.—Juniper berries may be united with elder and eupatorium purpureum, and tinetured in gin, and when taken in alternation with digitalis and apocynum cannabinum are very valuable in unloading the tissues. But alone it is not as active as might be desired. The oil is the diuretic principle, and I usually use it in the form of a tineture by adding one ounce of the oil of juniper to a pint of alcohol. The dose is from one to two drachms, every two or three hours; or one ounce of the oil of juniper may be added to one pint of sweet spirits of nitre. The dose is from one to one and a half drachms, every three hours. This forms a very mild diuretic in dropsy and for strangury.

The berries should be tinctured while fresh, for, as the oil in them is volatile, it soon evaporates, and they are then useless. For general use it is best to purchase the oil, and make it into a tincture as above. The dose of the oil is from five to fifteen drops in sweetened water, four times a day; or spirits of nitre, four ounces; oil of juniper, one ounce. Dose, thirty drops.

Daucus Carrota-Wild Carrot.

The wild carrot (natural order Apiaceæ) is a very common indigenous plant, which is found also wild in Europe. It has a biennial spindle-shaped root, and an erect, branching stem, two or three feet high; tripinnate leaves, with narrow, pointed leaflets, and small white flowers, arranged in umbels. The seeds, which are the officinal portion, are of a light brownish color, oval in shape, convex and bristly on one side, and flat on the other. They are of an aromatic odor, and an aromatic, pungent, bitterish taste, and contain a volatile oil, on which their diuretic property depends.

Medical Effects.—The carrot seeds are aromatic and diuretic, and applicable in dropsy and nephritic affections, as they agree well with the stomach. The oil may be used like juniper oil, with spirits of nitre, in doses of ten or fifteen drops, every two or three hours. It is a valuable remedy in strangury, for which the infusion of the seed may be used freely; or an infusion of carrot and water-melon seed may be taken freely. The tincture or spirits of the oil may be made by adding one ounce of the oil to one pint of alcohol (76°). Dose, one to two drachms. The root possesses the same property. The cultivated root is used as a poultice to risings.

Eupatorium Purpureum—Queen of the Meadow, Gravel Weed.

The queen of the meadow is an herbaceous plant, with a perennial, woody, branching root; the fibers are long and of a dark brown color, of an aromatic odor, and a terebinthinate taste. It sends up one or more green or purplish stems, five or six feet high. The leaves are oblong-ovate or lanceolate, coarsely serrate, and five or six in a whorl around the stalk. The flowers are very handsome, tubular in shape, of a purple, often varying to a whitish color, and large. It grows in meadows, or along the banks of streams, in rich, sandy loam, in almost all the States of North America, flowering in August and Septem-

ber. The root is the officinal part, and contains an oil and perhaps an oleo-resin, upon which its diuretic powers depend. It should be tinctured while fresh.

Medical Uses.—This is one of the most positive diuretics we have, if it is used in its fresh state, but when dried it is of very feeble powers. I use a saturated tincture made in sweet spirits of nitre. It is made by steeping one pound of the fresh root, bruised, in a quart of spirits of nitre, for ten days; and straining it; the dose is then from one to two drachms every hour. This is a very prompt diuretic, and may be alternated with the tinctures of foxglove and apocynum cannabinum or with other diuretics.

Eupurpurin.—Eupurpurin is a concentrated extract of the eupatorium purpureum. This article varies in property, according to the mode of manufacturing it. The article frequently sold by some manufacturers is not the full representative of the crude root or fluid extract. I have not found any article that possesses the diuretic power of the root.

Some writers give it a high recommendation as a uterine tonic, and say that it is a parturient of considerable power. Of this I cannot speak, as I have not used it in cases of labor. In uterine leucorrhœa, consequent upon chronic metritis or debility, eupurpurin, combined with caulophyllin and hamamelin, would doubtless be of much utility. As a diuretic, when prepared so as to contain that property of the root, it is quite convenient, and is an efficient remedy in dropsy, and may be combined with chimaphilin and menispermin, and given in moderate doses, repeated every two, three or four hours, according to the urgency of the case; and if great activity be required, it may be combined with the oil of juniper and nitre, etc. The fluid extract is a good preparation, and much more reliable than the eupurpurin as a diuretic, and should be used for that purpose.

As a uterine tonic, eupurpurin may be given in doses of one or two grains, every three hours; or, triturated, the dose is from

five to ten grains, three or four times a day. The trituration should be one grain to ten of lactin.

Sarothamnus Scoparius—Broom.

Broom is a common shrub, indigenous to Europe (natural order Fabaceæ), now naturalized and cultivated in the United States as an ornamental plant. It is from three to six feet high, bearing many beautiful bright yellow flowers, and continues flowering for some time. The seed is in a small bean-like hull. The leaves are small, oblong and downy, of a bright-green color, like the stems. The top and branches are officinal, and have a nauseous, bitter taste.

Medical Effects and Uses.—Broom is a moderately active diuretic, and in large doses it produces active catharsis. In moderate doses, it is a valuable remedy in dropsy. It is best given in the form of the decoction, made by boiling an ounce in a pint of water down to half a pint, of which from half an ounce to one ounce may be given every one or two hours until slight purging is produced. The essential tincture or the fluid extract may be used in doses of from half a drachm to one drachm every two hours. The essential tincture may be made by covering the crushed fresh broom in alcohol (60°). The dose is about the same as the fluid extract, as there is not much difference in the strength. This, combined with hair-cap moss (bear's bed), makes an active diuretic, very useful in dropsy.

Polytrichum Juniperinum—Hair-Cap Moss, Robin's Rye, Ground Moss, Bear's Bed.

The hair-cap moss, or bear's bed, is an indigenous plant, having a perennial stem, slender, of a reddish color, and from four to seven inches high; leaves lanceolate, and somewhat spreading. The fruit is a four-sided oblong capsule. It grows in high, dry places, along the margins of dry woods, mostly in poor sandy soil. It yields its virtue to water, and especially to boiling water.

Properties and Uses.—In the form of an infusion, the hair-cap moss is a good diuretic in dropsy; if taken freely, it is very active. It is also useful in certain urinary difficulties, as calculous formations. It is not a solvent of calculi, but increases the watery elements of the urine, and thereby lessens the tendency to calculous concretions.

In dropsy, I have often used the hair-cap moss combined with pipsissewa, elder and eupatorium purpureum, A strong infusion of the above compound will act on the kidneys when ordinary diuretics have utterly failed. It is a good remedy in strangury and suppression of urine. It is best given in the form of infusion, in combination with some other diuretic. In dropsy, we often need a variety of diuretics to ensure certainty of action. The infusion may be made by boiling one-fourth of a pound in a pint of water. Dose, one to two ounces, every hour or two.

Chimaphila Umbellata—Pipsissewa, Wintergreen, Ground Holly.

This is a well-known little plant, growing in Europe, Asia and America. It is found in North America, from Canada to Florida. It is generally met with in shady situations, especially in sandy pine forests. It flowers in June, and ripens its seed in autumn. The leaves are lanceolate, somewhat wedge-shaped, narrow toward the base, much serrated at their edges, coriaceous, and of shining, dark-green color, with a whitish stem. It grows to the height of three to six inches.

Medical Uses.—Pipsissewa is a very active and valuable diuretic, and possesses some alterative and tonic powers. It is one of those direct agents upon which we may depend to fulfil certain indications. It is applicable in all cases of dropsy, as an active diuretic, as it does the work of that class of remedies with great promptitude and certainty, and it has other well-known and special properties that do not belong to many other articles of this class. In most cases of dropsy following attacks

of acute diseases, there is a state of debility existing which requires a mild tonic remedy, and after measles and scarlatina, there often exists with the debility and dropsy, a poisoned state of the blood, the result of retained effete matter from the obstruction of the various eliminating organs. Here pipsissewa answers the three-fold indications.

It is a tonic to digestion and assimilation, and to the eliminating functions, and then its mild, alterative powers rapidly convey the effete material out of the blood through the skin and kidneys, as it is a diuretic and diaphoretic. The first trial I made of this article convinced me that it is a superior remedy in cases of dropsy generally, as it acts with great certainty; but it is especially required in those cases of dropsy following measles and scarlatina.

I was called to treat an old lady who was very low with dropsy following measles; at the same time the glandular system showed unmistakable evidences of retained virus in the blood, that the skin and kidneys could not readily throw out of the system. The parotid and submaxillary glands were very greatly inflamed, and in spite of all my efforts, the parotid glands suppurated and continued to discharge pus for a considerable time, although I applied iodine externally to them; all this treatment was to no purpose until I commenced to give pipsissewa very freely as a constant drink. I gave it in the form of a moderately strong infusion of the fresh plant as a common drink. One great cause of this want of success with this article, is because it is given in too small quantities, or because an inferior, or inert article is used. Now, the case above spoken of was a good one to test its powers. So I depended upon pipsissewa, and continued it until it finally relieved all the symptoms of dropsy and the glandular poisoning, and gradually restored the strength.

I have used it often, in connection with other diuretics (the activity of which it always increases), in all forms of dropsy, and find it a most certain and positive remedy in this disease.

If I had to depend upon one single remedy in dropsy, I believe that I would prefer this one to any other in the entire materia medica. Its very positive eliminative powers make it a good remedy in rheumatism. It was used in rheumatism by the Indians. As I stated above, the infusion is a good form for use, but a saturated tincture, which is a good preparation, may be prepared by covering the crushed plant in diluted alcohol; dose, the same as the fluid extract, one to two drachms.

Galium Aparine—Cleavers, Goose Grass, Catchweed, Bed Straw.

Cleavers is a small succulent plant, with a weak procumbent, quadrangular, retrosely-prickled stem, which grows from two to six feet high, and is hairy at the joints. The leaves are one or two inches long, and two or three lines in breadth; rough on the margin, and tapering to the base. The flowers are white, small and scattered. It is common to Europe and the United States, growing in moist thickets, and along the banks of creeks, branches and rivers, and along the borders of meadows, and blooms from June to September. It has an acidulous, astringent and bitter taste. Water, cold or warm, extracts its virtues, but boiling water destroys them entirely.

Medical Uses.—Cleavers is a most valuable diuretic. It is valuable in many diseases of the urinary organs, as well as in dropsy. It may be given with much advantage in scalding of the urine, calculous diseases, inflammation of the bladder and kidneys, and in gonorrhæa. It is more applicable in cases attended with febrile excitement than in those of a passive character. An infusion may be made by steeping two ounces of the plant in a pint of water, and from two to four ounces of the infusion may be given three or four times a day.

Galium Tinctorium—Small Cleavers.

The galium tinctorium, or small cleavers, is a nervine, anti-spasmodic, expectorant and diaphoretic. It is used in

asthma, cough, and chronic bronchitis. Preparations and doses, the same as above.

Cantharis—Cantharides, Spanish Fly.

Cantharides, besides being used as irritants or epispastics, are used internally by some practitioners as a diuretic; but their great liability to irritate the genito-urinary passages, causing strangury, priapism, etc., and in over-doses to act as an acronarcotic poison, precludes their use as a diuretic, whilst there are others which are more active but devoid of this danger. As epispastics, or irritants, they are much used by some practitioners in the form of the well-known blistering ointment, which vesicates in from four to six hours, and should then be removed.

Hydrastis Canadensis-Golden Seal, Yellow Root.

Golden seal, already described under the head of Tonics, has considerable diuretic powers. It contains the alkaloid, berberina, and another alkaloid, hydrastia. Its direct tonic powers are very positive. Prof. Biddle, of Philadelphia, says: "It is a very efficacious diuretic in promoting the discharge of calculi from the kidneys."

The powder may be given in doses of from five to ten grains; the fluid extract may be given in doses of from one to two drachms. The saturated tincture is made by adding four ounces of the crushed root to one pint of alcohol (30°), and after steeping ten days, percolating, The dose will be from two to four drachms, every four hours. I do not think it is a very active diuretic, but its tonic effects render it a good remedy in that state of debility which gives rise to calculi. Hydrastis is a valuable tonic, and this is its chief use.

Delphinium Consolida—Larkspur.

Delphinium contains the alkaloid, delphinia, which is a good diuretic, but in over-doses is liable to produce vomiting and purging. A tincture of the seed may be made by adding four ounces to one pint of alcohol (96°). The dose of this is

from five to ten drops, every three or four hours. Its specific or direct action is upon the reproductive organs of both male and female, especially the male. It is a remedy in spermator-rhoea, lessening irritation of the prostate gland and the vesiculæ. It cures prostatorrhoea, and relieves inflammation of these parts speedily. It has considerable influence over the urethra, quieting the irritation, and lessening the mucous or muco-purulent discharges; and it influences the kidneys and bladder to a less extent, but sufficiently to be of utility in many cases of disease of these organs. It influences the nervous system, and is a remedy in hysteria and hypochondriasis when attended with violent outbursts of passion or emotion. It should never be given in large doses.

Delphinium Staphisagria—Stavesacre.

The delphinium staphisagria is a more active article than the D. consolida, and possesses the same properties, but may be used in smaller doses. The tincture, prepared in the same way, may be given in doses of from two to six drops, every three or four hours, or a fluid extract may be used in doses of from one to three drops every three hours.

Petroselinum Sativum—Parsley.

Parsley is a European plant (natural order Apiaceæ), which is now cultivated in gardens in the United States. It is a very active diuretic, if given in large quantities in infusion. It should always be made from the fresh root, and given in doses of two to three ounces every hour. It also contains a yellowish, oily liquid, called *apiol*, which is highly praised by some writers as a remedy in dysmenorrhæa and amenorrhæa. It may be given in doses of from three to four grains, three times a day.

The oil, in three or four-drop doses, is an admirable diuretic in dropsy following measles and scarlet fever, and other acute diseases. I have often used this, with other diuretics, in

dropsy, and have found it very active. It may be combined with the common watermelon seed in compound infusion, made strong, or with eupatorium purpureum, or any other active diuretic. I think that diuretics are a class of remedies that may be advantageously combined. In combination they may meet diversified conditions that single articles cannot meet. For instance, in cases of cardiac disease, digitalis can be combined with other diuretics, and in cases of debility, pipsissewa will be quite an addition, as it is a tonic diuretic.

Apiol.—Apiol is the concentrated medical principle of the petroselinum sativum. Apiol has only lately been introduced to the notice of the profession, and is receiving considerable attention as an emmenagogue. It is particularly reliable in the treatment of amenorrhæa, resulting from a feeble condition of the uterus and its appendages. It is said that it causes increased excitement to the pelvis, and increased innervation to the uterus, thereby giving increased tone and vigor to its functional action, etc. Its action resembles betin, but while it acts upon the uterus and stimulates its functions, it also possesses diuretic powers.

As an emmenagogue its use should be continued, like most remedies of that class, for some time, to obtain its benefits. It may be combined with ergot, caulophyllin, macrotin, betin or polygonin, or even with gossipiin. Its action seems to be to create an increase of nerve fluid, and to direct it to the uterus and kidneys, thereby increasing the natural functions of those organs. As a diuretic it may be combined with ampelopsin, chimaphilin, eupurpurin or araliacein.

The dose, as a diuretic, is five grains every three hours; as an emmenagogue, from ten to fifteen grains every four hours. The most convenient form for its administration is to add from forty to sixty grains to one ounce of simple syrup, the dose of which is one to two drachms every four hours. The fluid extract is quite active.

Polygonum Punctatum-Water Pepper, Smartweed.

The polygonum punctatum is an annual plant, with a branched, decumbent stem, growing from one to two feet high. The leaves are alternate, lanceolate, petiolate, with pellucid dots, wavy and scabrous on the margin. The flowers are small, greenish-white or purple, disposed in slender, drooping, but finally erect spikes, like the lady-finger. There are two varieties in America, growing in the same locality, but that which I have investigated is the smaller, with an acrid, peppery, pungent taste. It flowers in August and September. The whole plant is officinal, and should be used in its fresh state, or tinctured while fresh, as it loses its medical virtues by age. It imparts its virtues to alcohol and water.

Properties and Uses.—This is a stimulant, diuretic, emmenagogue, diaphoretic and antispasmodic. The infusion, taken warm, acts as a diaphoretic, but taken cold, it acts well as a diuretic. It should not be boiled, as this destroys its virtues. This remedy is applicable in cases of dropsy, associated with obstruction of the menstrual flow, as it thus meets two indications. Besides its diuretic property, it acts as a tonic upon the urinary apparatus, and improves not only the secretory power of the kidneys, but also the expulsive power of the bladder, in the retention of urine, very remarkably.

Coffea Arabica-Coffee.

Coffee is the seed of the coffea (or caffea) Arabica (natural order Cinchonaceæ), a small tree, native of Southern Arabia and Abyssinia, and which is cultivated in various hot countries. It contains a nitrogenous principle called caffeina ($C_8H_{10}N_4O_2+H_2O$) which is considered to be identical with theina, and two other peculiar principles: one resembling tannin, called caffeotannic acid, and another called coffeic acid. Roasting develops an oil, upon which the flavor depends.

Medical Properties.—Coffee has specific effects upon the cerebral nervous system, and may be employed in atony, with

disordered function. It is a very positive remedy in cases of poisoning from opium, and, perhaps, from other narcotics. It is a very valuable diuretic, especially in its green state, in the form of a strong infusion, and the quantity required depends upon the quantity taken in health as a beverage. Usually, for persons not accustomed to use it, from four to six ounces is sufficient, repeated every three hours.

It lessens the uric acid and increases the urea in the urine. Its specific action upon the brain increases the mental manifestations very remarkably, but the habitual use of it tends to exhaust the cerebral nervous power, and to induce atony of the cerebral venous circulation, and finally nervous headache and torpor.

Caffeina.—Caffeina, or caffeine, is an active medical principle, made from the common coffee. This article has two marked effects on the system: the one a diuretic effect, and the other an anti-soporific effect upon the brain; this last effect renders it a valuable antidote to opium and other narcotic poisons. As an antidote to opium, I have used it in extreme cases, with the most certain and prompt results.

In large quantities, it has a marked effect upon inebriates, and will counteract the intoxicating effects of alcohol to a considerable extent. I have used it in cases of determination to the brain, with good results. It seems to counteract congestion of the brain to a very considerable degree. It has a happy effect upon the cerebrum, influencing the mental manifestations, quickening the perceptions, heightening the imagination, and giving vigor to all the mental faculties. But the habitual use, like other mental stimulants, will produce ultimate injury to the system.

As an antidote to opium and other narcotics, I have found no remedy that equals it; I have had some cases that would have proved fatal without it, but which were readily relieved by a few doses of caffeina. When I want to study any subject that is intricate and abstruse, I am in the habit of resorting to this best of cerebral exciters, and find it very certain. The dose of caffeina is from two to three grains, but in extreme cases it may be given in larger doses.

Aralia Hispida—Dwarf Elder.

The fluid extract or saturated tincture of aralia hispida is a very active diuretic. I have used it a great deal in dropsy, and have found it a valuable remedy to unload the cavities and cellular tissue of the accumulated serous collection, thereby aiding in the final cure. The saturated tincture of the fluid extract is the proper form in which to use it. The dose of the tincture is from thirty to sixty drops; the dose of the fluid extract, from fifteen to thirty drops, every three hours.

Apis Mellifica-Honey Bee.

An aqueous extract or saturated tincture of the honey bee, forms one of the most positive diuretics in the materia medica. This tincture is not only valuable in dropsy, but also in suppression of urine from atony. It is a good remedy in retention of urine and in irritation of the bladder and urethra. The dose of the saturated tincture, made by covering the bees in alcohol (96°), is from two to four drops. Ordinarily, one or two drops is sufficient. In irritation of the bladder and urethra, characterized by heat and tension, with a constant desire to urinate, the tincture of apis will give prompt relief. It will doubtless be a good remedy for catarrh of the bladder. The infusion may also be used. It is an admirable remedy in cutaneous inflammations, as erysipelas.

CHAPTER XVII.

Demulcents—Lenitives.

DEMULCENTS are remedies which relax and soften the tissues, and which, if applied to irritated or inflamed surfaces, will diminish heat, pain, and tension.

They consist mostly of gums, or mucilages, or of these, mixed with saccharine and farinaceous materials; when dissolved in water, they form viscid solutions. They are nutritive, and to some extent, they relieve irritation by modifying the acridity of the secretions.

This class of remedies may be administered internally, to sheathe and protect the gastro-enteric surface from the injurious effects of irritating substances, such as poisons. They are also sometimes given in cases of inflammation of the alimentary canal, as in gastritis, enteritis, dysentery and diarrhœa. In catarrhal affections, where the mucous membranes of the air passages are dry, these remedies are beneficial. In affections of the urinary passages, as ardor urinæ, cystitis, urethritis, etc., they are beneficial, as they diminish the acridity of the secretions. In fevers, they are sometimes given as nutrients. They are also given to increase the fluid parts of the blood, in which case they act as diluents. They are used to suspend certain substances that are insoluble in water, or that are otherwise acrid.

Externally, demulcents or mucilaginous solutions are used to relieve the heat, swelling and pain of inflammations, wounds and bruises, etc., and to hasten the suppurative process, where resolution cannot be expected, and are also used to cleanse foul ulcers, and to promote suppuration from granulating surfaces.

Mucilaginous and amylaceous substances are formed into poultices, and very often used for ulcerated or tumified parts, as risings, rheumatism and gout. In pneumonia, bronchitis, peritonitis and dysentery, they are used, thickened with Indian meal or wheat bran, to relax the parts, and thereby favor transpiration.

Aqua-Water.

Water has very important medical properties, as well as pharmaceutical uses. Rain or snow water is the purest; for pharmaceutical purposes, distilled water is the best. Pure water is composed of two atoms of hydrogen and one of oxygen (H_2O) . Water is seldom pure.

Medical Uses.—A certain amount of water is necessary for the digestion of the food, but in excessive quantities it may be injurious. Some articles of diet, as sugar, do not ordinarily undergo the fermentation necessary for digestion, without being dissolved in water. But as an excess of water dilutes the gastric fluid too much for digestion, it is injurious.

Aqua Acidi Carbonici-Carbonic Acid Water.

Carbonic acid water (H₂CO₃) is water impregnated with carbonic acid, equal to five times the bulk of the water. It may be obtained from bicarbonate of sodium by means of diluted sulphuric acid. This proves useful in allaying nausea and vomiting, and serves as a vehicle for some of the neutral purgative salts, correcting the unpleasantness of their taste.

Acaciæ Arabicæ Gummi-Gum Arabic.

Gum acacia is an exudation from the acacia vera, A. Arabica, and other species of acacia (natural order Fabaceæ), thorny or prickly trees or shrubs of Africa and Arabia.

Gum arabic dissolves in hot or cold water, forming mucilage, but not in alcohol or ether. Alcohol, the subacetate and nitrate of lead, and the solution of chloride of iron, precipitate the solution of gum arabic in water.

Medical Effects and Uses.—As a demulcent, gum arabic is much employed internally in gastro-enteric inflammations, diarrhoa, dysentery, and in poisoning from acrid substances. It is also frequently employed in pulmonary affections as a vehicle for expectorants.

As a diluent, it is often used in fevers. It may be dissolved in water, one ounce to the pint. Dose, from one to four ounces. The syrup of acacia may be made by adding two ounces to eight ounces of water, and then dissolving fourteen ounces of sugar in the eight ounces of solution. It is difficult of digestion.

Linum-Flax Seed.

Flax seed is from the linum usitatissimum, or common flax (natural order Linaceæ), an annual plant, growing to the height of two or three feet; originally a native of eastern countries, but now naturalized in the United States. The seed and oil are both officinal. The seed contains thirty-seven or thirty-eight per cent. of fixed oil, and a large proportion of mucilaginous matter—the mucilage being principally in the husk of the seed —soluble in water, and much resembling Arabin.

Medical Uses.—This article is much used in the form of the compound infusion of flax seed, which is made by mixing half an ounce of flax seed and one-fourth of an ounce of liquorice root in one pint of boiling water. This makes a good demulcent in coughs, catarrh, bowel complaints, strangury, etc. The seed should not be boiled, as that extracts the oil. The flax seed meal (lini farina) forms a good poultice to swellings, risings, inflammations, etc.

Linseed Oil.—Linseed oil (oleum lini) is obtained by expression from the interior of the seed; it is a laxative in doses of one or two ounces, but is chiefly used externally in the form of the linimentum calcis (liniment of lime-water and linseed oil), made by adding eight ounces of lime-water to seven ounces of linseed oil. This, applied on cotton batting, is a valuable preparation for scalds and burns.

Ulmus Fulva—Slippery Elm.

Slippery elm is the inner bark of the ulmus fulva (natural order Ulmaceæ), a lofty tree, indigenous to the United States. It is prepared for use by removing the epidermis. A large quantity of mucilage is found in the bark, and is readily yielded to water, warm or cold.

Medical Properties and Uses.—Slippery elm bark is one of our most valuable demulcents, and is very extensively used for that purpose in all cases where such an article is required. It is preferable in dysentery to any other article of its class. In catarrhal affections, it is inferior to flax seed. The mucilage is highly nutritious. The slippery elm bark is a valuable external remedy in risings of the female breast, and in other inflammations, used in the form of a poultice, made from the powder, or from the mucilage, by thickening with corn meal.

The infusion forms a valuable drink in fevers, where there are acrid secretions floating along the alimentary canal. The infusion may be made by adding an ounce to a pint of water, boiling a few minutes, then cooling. This may be taken as freely as the patient may desire. This mucilage is recommended in urinary diseases, but, as it is digested before it reaches the urinary channel, it is of no utility.

Sassafras Medulla—Sassafras Pith.

The pith in the twigs or stems of the sassafras tree makes one of our mildest mucilages, very similar to that contained in the quince seed. This pith abounds in a thick gummy material, which readily dissolves in water, forming a clear, viscid mucilage.

Medical Uses.—This mucilage, one ounce to one pint of hot water, makes a good demulcent drink. The bark also contains a good mucilage, which, boiled and thickened with meal, makes a valuable poultice. The mucilage from the pith is a good application in ophthalmia. The leaves, chewed, are a good poultice in boils, risings, bruises and sprains.

Althæa Officinalis-Marshmallow.

The roots of althea officinalis (natural order Malvaceæ) and other herbaceous European plants of the same family, sometimes found on the borders of the salt marshes in the United States, are officinal; they have a mild, mucilaginous and sweetish taste. The chief constituents of marshmallow are mucilage and starch. The mucilage is soluble in cold, and the starch in hot water. It contains also asparagin or asparamide.

Medical Uses.—The mucilage is valuable in diseases of the respiratory system; it is also very efficient in diseases of the urinary organs, owing to the asparagin it contains. It makes a valuable poultice to ulcers, boils, bruises and inflammations.

Sesamum—Benne.

This is the product of sesamum Indicum and sesamum orientale (natural order Pedaliaceæ), an annual plant or plants, growing to the height of four or five feet, with ovate-lanceolate leaves, somewhat lobed, flowers reddish-white, seed small, oval, and of a yellowish color, in an oblong capsule. These plants are natives of India, but are grown in Egypt, Italy, and in some parts of the Southern States. The leaves yield a large quantity of mucilage to cold water, which resembles the mucilage of the pith of sassafras.

Medical Uses.—The mucilage is esteemed a valuable demulcent in cholera infantum and bowel diseases. The oil of the seed is of a bland, sweetish taste, inodorous; may be used for olive oil. It is known as oleum sesami.

Cydonium-Quince Seed.

This is the seed of the cydonia vulgaris (natural order Rosaceæ, Pomeæ), a native of Europe, now cultivated in the United States for its fruit. The seeds abound in mucilage. They are much used; two drachms of the seed to a pint of boiling water. The mucilage is a very soothing and emollient application to violent ophthalmia, resembling the mucilage from

the pith of sassafras. It is also applicable to bruises, sores, burns and inflammations.

Glycyrrhiza Glabra-Liquorice Root.

This is the root of the glycyrrhiza glabra (natural order Fabaceæ), a small perennial plant, growing in the countries near the Mediterranean Sea. This root is of a grayish-brown externally; internally it is of a yellowish color, without odor, and of a sweet, mucilaginous taste. It is composed of a yellow, uncrystallizable sugar, termed glycyrrhizin, which is only slightly soluble in cold water, but is soluble in boiling water and alcohol. It also contains starch, albumen, and an acrid resin, etc.

Medical Uses.—A decoction of liquorice root, made by adding one ounce to one pint of boiling water, is a useful demulcent in catarrhal, dysenteric and nephritic affections. It is often added to other acrid medicines to mask their acridity. The decoction should be made of the root, deprived of its cortical parts, which are acrid and devoid of demulcent virtues. The powdered root is used in making pills. The fluid extract is officinal.

Extractum glycyrrhizæ (extract of liquorice) is made by the evaporation of a decoction of the freshly dried root. It comes in black, flattened, cylindrical rolls, is brittle, and breaks with shining fracture. It is of an acrid, sweetish taste, soluble in water. Liquorice, when pure, is a good demulcent, much used in cough mixtures and lozenges.

Cetraria Islandica-Iceland Moss.

Iceland moss (natural order Lichenaceæ) is a foliaceous, erect lichen, from two to four inches high, found in the mountainous regions of both continents. It is principally obtained from Iceland and Norway. It is almost odorless, has a bitter taste, and is rather mucilaginous. It makes a whitish-gray powder. It yields its virtues to boiling water. It contains

lichenin (which gives a blue color with iodine), and other principles.

Medical Uses.—Iceland moss is a tonic and demulcent, and is highly nutritious. It is used in cases requiring a light aliment combined with a tonic. Its demulcent properties render it very soothing to inflamed mucous membranes. It is chiefly used in pulmonary and digestive complaints, in the form of decoction, made by adding one ounce to one pint of boiling water, which may be taken as a drink.

Chondrus Crispus—Irish Moss.

Irish moss (natural order Algaceæ) is a marine alga, found chiefly on the west coast of Ireland, and on the coast of New England. It is prepared for use by washing, bleaching, and drying. It contains several principles. It is used like Iceland moss in some chronic pulmonary diseases, as bronchitis. Boiled in milk, it forms what is called blanc-mange, a good diet drink for consumptives, and invalids generally.

Amylum—Starch.

Starch is made from wheat (natural order Graminaceæ), corn, and many bulbous roots. It is a proximate principle which prevades the vegetable kingdom, being found in the seeds of plants, tubers, and bulbous roots. It is obtained from the various substances that contain it, by minute division, then agitating or washing them with cold water, straining off the liquid, and allowing it to stand until the fecula have subsided.

It occurs as a white, opaque, odorless, tasteless powder, of a crystalline aspect, and produces a peculiar crackling sound when pressed between the fingers. It is insoluble in alcohol, ether, and nearly so in cold water. Examined under the microscope, it consists of minute cells or granules. The envelope of these granules is insoluble in cold water, but is ruptured by heat, so that it is soon dissolved.

Starch is C₆H₁₀O₅. By boiling with nitric, muriatic, or sul-

phuric acid, it is converted into dextrin, an isomeric soluble principle; and this, by the same process, is converted into grape sugar. The same process with grains, after germination takes place, converts them into diastase by the agency of nitrogenous principles. The test for starch, in any substances, is iodine, which forms with starch-solution a rich blue iodide; with bromine, starch throws down an orange precipitate. Nitric acid converts starch into oxalic acid. Hence, they should never be prescribed together, as it would poison the patient.

Effects and Uses. — The farinaceous articles containing starch, form an important group of nutrients. Their assimilation is effected by the albuminous principles of the stomach and bowels; that is, saliva, pepsin, etc., which change starch into grape sugar. This is readily converted into fatty tissue, and is partly converted into lactic acid by fermentation, which acts as a calefacient.

Starch is used as an antidote to iodine, as an emollient poultice, and in solution as a vehicle for laudanum enemas, and for dusting excoriated surfaces. It is also valuable to lubricate the bowels, and protect them from the irritation of acrid substances in case of inflammation of any portion of the intestines, at the same time furnishing a mild and unirritating food for the patient. When starch is used as a nutrient, it should have milk added to it, which increases its nutrient powers without injuring its lubricating and soothing properties. It should not be made too thick.

Maranta-Arrow Root.

Arrow root is the fecula obtained from the rhizome of maranta arundinacea (natural order Marantaceæ), a perennial herbaceous plant growing to the height of two or three feet, originally found in the West Indies, but now cultivated in Georgia, Florida, Ceylon, the East Indies and other countries. This root consists mostly of fecula, or starch, which is obtained from the roots when they are about one year old. They are

washed and beaten into a pulp, which is then stirred in water, and the fibrous parts wrung out by the hands; the milky liquid is strained and suffered to settle, and when it subsides, is dried in the sun. It is a light, opaque, white powder, without odor or taste.

Arrow root is a pure starch, and is insoluble in cold water. Viewed under the microscope, the granules of the genuine arrow root are ovate oblong, and irregularly convex from one two-thousandth to one seven-hundred-and-fiftieth of an inch long, with fine rings, etc.

Effects and Uses.—Arrow root is a valuable nutrient demulcent. It constitutes a good diet for bowel complaints. It is a good substitute for milk where the mother's milk is unhealthy. It is prepared by mixing from one to two tablespoonfuls with water, reducing to a paste and then adding a pint of hot water, stirring until cool.

Tapioca.

Tapioca is the fecula of the root of the janipha manihot (natural order Euphorbiaceæ), a shrub growing in South America. It is cultivated also in the West Indies, and grows to the height of six or eight feet. It is called the cassava plant in the West Indies. The root is a large, white fleshy tuber, and consists of two varieties, the sweet and the bitter; the bitter variety contains an acrid poisonous juice, in which prussic acid is present, which is dissipated by heat, and should be boiled. Tapioca occurs in irregular, hard, white, rough grains, which have but little taste, and are partially soluble in cold water.

In hot water tapioca swells up and forms a transparent jellylike mass, which constitutes a good demulcent diet, applicable to the same class of diseases in which arrow root is recommended. It may be prepared by soaking two tablespoonfuls in half a pint of cold water for three or four hours, then adding a pint of milk or water, and boiling gently until it becomes soft, stirring well as it cools, then flavoring with lemon, wine or nutmeg, with a little sugar. By adding equal quantities of sago and tapioca or arrow root, and cooking as above, and flavoring as may be required, this makes a good article of diet for infants, when the mother's milk disagrees with them, and may be given as milk.

Sago.

Sago is a fecula prepared from the pith of the sagus rumphii or sago palm, and from other species of sagus (natural order Palmaceæ), small trees of the Moluccas and other East India islands. The green stems of these trees contain a great deal of spongy medullary matter, which is extracted in the form of a coarse powder, and this, mingled with water, soon deposits the insoluble farina, which, when dried, constitutes sago. That which has been refined, called pearl sago, is the best for use. Sago is, chemically, a starch. It is insoluble in cold water, but soluble in warm or boiling water.

Effects and Uses.—Sago constitutes a bland and unirritating article of diet for the sick. It is prepared by mixing two tablespoonfuls of sago with a pint of water, a little essence of lemon, and a sufficiency of sugar to sweeten; it is then boiled until well dissolved; then stirred until cool, and it may be flavored with mace, spice, nutmeg, or whatever may be preferred. This is a good diet for bowel diseases and for dyspeptics; also for feeble infants, and for those with whom the mother's milk disagrees. The starch made from green corn ears is very similar to sago, and answers the same purpose.

Hordeum Decorticatum-Pearl Barley.

Pearl barley is barley with the investments removed, and is the only form fit for medical use. It yields its virtues to water. In the form of decoction, suitably flavored, it makes a bland, demulcent, nutritive drink. It may be made by adding two ounces of barley to half a pint of water, and boiling for a short time. Then throw away the water, and add two pints of boiling water and boil to one pint; then give as required. Wort is more nutritious. It is made by boiling the malt of barley with hops, and flavoring to the taste.

Avenæ Farina-Oatmeal.

Oatmeal furnishes a pleasant diet for the sick, much more nutritious than the pure starches, as it contains sixteen per cent. of albumenoid constituents, with sixty-five per cent. of starch. It is slightly laxative, and often obviates the necessity for purgatives. Oatmeal gruel is prepared by boiling from one to two ounces of the meal in three pints of water down to two pints, straining the decoction, allowing to cool; then pouring off the clear fluid; flavoring with sugar, raisins or lemon juice. This makes a good diet in fevers or bowel diseases.

Oryza Sativa-Rice.

Rice is the seed of the oryza sativa (natural order Graminaceæ), which contains about eighty-five per cent. of starch, and nearly four per cent. of gluten. It is an excellent demulcent diet for the sick, especially in flux, etc. It should be cooked until the grain is well melted down to a pulp, and flavored with sugar, mace or lemon, and milk added while hot. This is much used at table as a mild and healthful diet, but is better suited to the sick than the healthy, being rather too weak a diet for laborers.

Zea Mays-Indian Corn.

Mays is the seed of the well-known Indian corn or maize. It is very highly nutritive, containing about nine per cent. of vegetable albumen and fifty-five per cent. of starch. The starch is best obtained from the corn while in the unripe or milk state. Thus obtained it makes a good diet for the sick, and is prepared in the same manner as sago or tapioca. The meal made into a mush, and mixed with sweet milk, makes a good diet for convalescents, and for those patients suffering from chronic diseases. As a diet for dyspeptics it is superior to flour of wheat, as it has a tendency to keep the bowels open. It should be well cooked.

Gelatina-Gelatin.

Gelatin is obtained from the bones and tissues of animals. It is soluble in boiling water, and cooling, forms a transparent jelly, and is an elegant demulcent. It comes in whitish or yellowish, semi-transparent, hard, tough and tasteless, inodorous strips. It is used in soups, but is rather hard of digestion. In pharmacy it is used to make capsules for the covering of disagreeable medicines.

Ichthyocolla—Isinglass.

Isinglass is prepared from the bladder of the acipenser huso (the sturgeon) and other fishes. It is mostly used with sago and tapioca in forming an artificial food for unweaned infants, and makes a good diet for them. It is usual to put some one or two ounces of sago and tapioca, and half an ounce of isinglass, to a pint of boiling water, and boil until melted, then stir until cool, and flavor with sugar, mace or lemon, and give in the place of milk. There is no substitute that equals this for infants whose mother's milk disagrees, or where the mother dies, and a wet-nurse cannot be obtained. Isinglass is used also to make the English court plaster, by spreading it evenly on silk, etc.

Adeps—Lard.

Adeps, or lard, is the prepared fat of the sus scrofa (the hog). It consists of olein and stearin. It is much used in pharmacy and in medical practice. In scarlatina, as an inunction, it is relied upon, and is doubtless often of material aid in the cure. It is also used in forming simple cerate, which is made by adding two ounces of lard to one ounce of white wax, and melting, stirring until cool. Ointment is made by melting together four parts of lard and one of wax. Lard oil is a good vehicle for anodyne enemata.

Sevum-Suet.

Suet is the prepared fat of the sheep or goat. It is composed mostly of stearin. It is often united with lard and other substances, to form ointments or salves.

Cetaceum-Spermaceti.

Spermaceti is a concrete substance, obtained from the physeter macrocephalus, the sperm whale. It is the palmitate of cetyl $\left[C_{16}H_{33}\left(C_{16}H_{31}O_{2}\right)\right]$ or cetin. A cerate is made of this article, one part, and three parts of white wax, by melting together, stirring until cool, and adding five parts of olive oil while cooling.

Cera Flava-Yellow Wax.

Beeswax is a concrete substance prepared by the honey bee (apis mellifica), and is used to form many ointments. Cera alba or white wax is the yellow wax bleached in open air by time. It is used in making cerates, ointments and plasters. Ceratum cantharidis (known as blistering cerate) is made by mixing twelve parts of powdered cantharides with seven parts each of melted wax and resin, and ten parts of lard.

Oleum Theabromæ—Cacao Butter.

Cacao butter is obtained from the fruit of the theobroma cacao (natural order Sterculiaceæ), a handsome tree of Mexico, the West Indies, Central and South America, which grows some fifteen to twenty feet high. The fruit is an ovate oblong capsule or berry, six inches in length, with a thick, coriaceous, ligneous rind, inclosing a white pulp, with numerous ovate seeds, about the size of an almond. They constitute the chocolate nuts of commerce. They contain fixed oil or cacao butter—theobromine and other matters. Theobromine is a nitrogenous alkaloid, analagous to caffeina. Cacao butter is obtained by expression, decoction, or by the action of a solvent. It is used for the coating of pills, and for suppositories. It is very valuable for the latter purpose.

Glycerinum—Glycerine.

Glycerine is obtained from fats and oils, where it exists, combined with acids, as stearic, margaric, oleic and others, and is liberated from them when they combine with bases in the process of saponification. It is also obtained in the process for making lead plaster, by mixing litharge (the oxide of lead) with olive oil and boiling water, by which a union of the fatty acid and the lead takes place, and is precipitated, glycerine remaining in solution. It is then freed from the remaining lead that it may contain by passing a stream of sulphuretted hydrogen gas through it, and then filtering it through animal charcoal. Or it may be made by blowing steam through fat, which will cause the separation of the glycerine and fatty acids.

Glycerine (C₃H₅,3HO), or glyceric alcohol, is the hydrate of glyceryl, glycyl, or propenyl. It is a thick, syrupy liquid, colorless or straw-colored, and unctuous to the touch, inodorous, and of a sharp, sweet taste. When pure, its specific gravity is 1.26, when it contains 98 per cent. of anhydrous glycerine, the specific gravity is 1.25. It is soluble in oils, alcohol and water, but is insoluble in ether and chloroform; it does not evaporate in the air, but absorbs one-half of its weight of water. It is a powerful solvent, and readily dissolves iodine, bromine, the alkalies, tannic and other vegetable acids, a large number of the neutral salts, and many organic principles. Substances dissolved in it are called glycerites. It should not be united with nitric acid, as it then forms the very explosive and dangerous substance known as nitro-glycerine.

Effects and Uses.—Glycerine so readily diffuses itself over organic matter that it is very useful as a vehicle for many medicines. It is a nutrient and demulcent, and is useful in cachectic, strumous, and asthenic conditions in children. It is mostly employed as a topical agent. In deafness from dryness and want of secretion in the meatus, it sometimes relieves the difficulty.

As a solvent to many active medicines, glycerine is a valuable article, serving at the same time the purpose of a mild nutrient. I have used it much as a vehicle for cough medicines, and think it preferable to honey or syrup. A good substitute for syrup of any of the expectorants may be formed by adding one ounce of the essential tincture to four ounces of glycerine. The glycerite of stillingia and other alteratives may be formed in the same way.

Pyroxylin-Gun Cotton.

Pyroxylin, or soluble gun cotton, may be made by adding a troy ounce of clean cotton to a mixture of three and a half ounces of nitric acid; gradually add this to four ounces of sulphuric acid, then allow it to macerate for fifteen hours, washing it first in cold water and then in warm, or in boiling water, so as to free it from the acid; then, after draining it on a filter of paper, it may be dried by means of a water-bath.

It has, when dried, the appearance of common cotton, but is harsher to the touch. It is insoluble in water, and but partially so in alcohol, but, when freshly prepared, it dissolves readily in ether, forming collodion, which is liable to be decomposed by age.

Collodium—Collodion.

Collodion is a valuable article to the surgeon, as it is not affected by water. It forms an adhesive substance, very applicable to wounds where it is necessary to apply water dressings, or where the parts are liable to be kept wet by thin discharges. It may be applied by wetting the parts and also the strips of .cloth intended to form the plasters in it, applying them while wet and holding them in place until dry. They then remain for a considerable time.

It may be made by adding two hundred grains of pyroxylin to twelve and one half ounces of strong ether, and three and one-half ounces of pure alcohol. It forms a syrupy, opalescent liquid, which has a strong ethereal smell. By long standing, it deposits a layer of fibrous matter, and becomes more transparent. This layer should be reincorporated by agitation before use.

Besides its use in the preparation of adhesive plaster, collodion forms a colorless, transparent, flexible, and contractile film or covering for abrasions, burns, and for erysipelatous inflammations. Its contractile power over the surface renders it antiphlogistic, by driving the blood from the part to which it is applied, thus lessening effusion and increasing absorption. It at the same time acts as an emollient, by protecting the inflamed surface from the air, etc.

Iodized collodion contains from ten to twenty grains of iodine to the fluid ounce of collodion. This is a good way to apply iodine to the surface where it is required.

Collodion and tannic acid united, by adding twenty grains of tannic acid to the fluid ounce of collodion, form a good styptic application when needed.

Flexible collodion is made by mixing together a pint of collodion, three hundred and twenty grains of turpentine, and one hundred and sixty grains of castor oil. This is used where contraction is to be avoided.

Liquor Guttæ-Perchæ-Solution of Gutta-Percha.

This useful article may be made by adding one and one-half ounces of gutta-percha to seventeen ounces of purified chloroform. When thus prepared it is a clear, colorless, or nearly colorless solution, and should be kept in well-stoppered glass vials. By the evaporation of the chloroform, when it is applied to the surface, this solution proves a valuable application to inflamed or abraded surfaces in some skin diseases, chaps, and is an excellent protective coating to parts upon which bed-sores are forming, or to exceriations.

Fermentum—Yeast.

The characteristic of yeast is its power to excite the vinous fermentation in saccharine and starchy liquids, which is owing to the presence of a cryptogamic plant, the torula gerevisiæ. Yeast is occasionally used in low fevers, in doses of from half an ounce to two ounces, every two or three hours, and it may prove laxative in doses of two ounces. As an external application, in poultices, it is often used in inflamed conditions of parts that are sloughing, or to ulcers that discharge an unhealthy looking pus. It is used also in bread.

Saccharum—Sugar.

Sugar is found diffused through the vegetable kingdom under a diversity of forms, distinguished by its characteristic sweet taste. Sugar is divided into two distinct varieties: Cane Sugar and Grape Sugar.

The first is the product of the saccharum officinarum (natural order Graminaceæ), which is indigenous to tropical countries, but is now cultivated in the United States and the West Indies. It is known by the common name of the sugar cane, and resembles the common Indian corn. The cane sugar is made in France from the beet root, and can be made from the sugar maple of Georgia and Tennessee. It is produced by first compressing the stalk and crushing out the juice, then boiling with quick-lime down to a thick syrup, which is cooled and granulated in wide, shallow vessels kept for the purpose. The raw sugar is refined by running it through animal charcoal before it granulates.

It is then white, crystallizing in double oblique prisms, and is of a very sweet taste, dissolving in one-third of its own weight of water. It dissolves slowly in alcohol, but not in ether. At the heat of 320° Fahrenheit it melts, and if cooled forms into glassy, amorphous masses, known as the barley sugar; from a very strong solution it will crystallize slowly upon strings, forming the rock candy.

Treacle or molasses (syrupus fuscus) results as the uncrystallizable principle which passes off from the granulating sugar, and is much used as a food. The grape sugar is found not

only in the grape but in many other acid fruits, in the liver and blood of mammalia, and also in the urine of diabetic patients. It may also be procured by acting on starch with dilute sulphuric acid. It is in the form of a dense transparent syrup, or as a grayish-white, non-crystalline mass.

Cane sugar $(C_{12}H_{22}O_{11})$ combines with alkalies to form saccharates. Grape sugar $(C_{12}H_{24}O_{12},2H_2O)$, when boiled with an alkali, is transformed into molassic acid; mixed with a solution of potassium and a weak solution of the sulphate of copper, it attracts oxygen, and causes a reddish precipitate of the oxide of copper (Cu_2O) . Hence the above ingredients are used as tests for diabetes, and are very reliable. I have often used them as tests in diabetic urine, and have found them quite positive. The solution of sulphate of copper should not be very strong, not more than two grains to the ounce.

Effects and Uses.—Sugar is a very mild and pleasant demulcent, and relieves catarrhal irritation very readily. It is much used as a vehicle for expectorants, and much of the relief obtained from cough syrups is due to the sugar which they contain. In pharmacy, sugar is much used for its agreeable taste, and also to preserve vegetable substances, and to prevent mineral medicines from oxidizing. Molasses is slightly laxative as well as demulcent, aids in keeping the bowels open, and is fat-producing.

Mel-Honey.

This well-known saccharine liquid is the product of the bee (apis mellifica). It is demulcent, and is often used to increase the efficacy of other articles. It is best when clarified (mel despumatum). It is also slightly laxative. It is much used as a food in many countries.

Saccharum Lactis-Sugar of Milk.

Sugar of milk (C₁₂H₂₂O₁₁,H₂O) is the saccharine principle of milk, which is obtained from whey. It is used to coat pills, as it does not absorb hydrogen; hence, it is always dry. By

fermentation, it develops lactic acid which is used in some cases of dyspepsia, and to remove phosphatic deposits in the urine. The dose is one ounce.

Carbo Ligni-Charcoal.

Charcoal is prepared by the exposure of wood to a red heat without the access of air. The willow, maple and pine, are the kinds used for the purpose. For medical purposes, that which is prepared from the young shoots of willow is preferable. When pulverized very finely it is useful as a medicinal agent.

Effects and Uses.—Charcoal is not strictly a demulcent, but is used as an absorbent of any acrid matters in the alimentary canal, and acts as a demulcent in shielding the mucous membranes from irritation. It is often used in dyspepsia, to absorb the excess of acid in the stomach, and also in diarrhæa for the same purpose. It is considered that it possesses antiseptic properties.

In old sores, where there are acrid and offensive discharges, it is often used with good effect, mixed with flax seed meal. It is also sprinkled over sloughing ulcers, to promote the separation of the decaying parts. Mixed with corn meal, and moistened with strong ooze of oak bark, it is a good application to parts in a state of gangrene. The dose, internally, is from one to three drachms, repeated every two hours.

CHAPTER XVIII.

Antiseptics—Disinfectants.

A NTISEPTICS are articles, either chemical or vegetable, which prevent or counteract putrefaction. Such remedies are often indicated in the treatment as well as in the prevention of disease; for many of this class of remedies not only prevent putrefaction when a septic condition already exists in the body, but also counteract it in the surrounding atmosphere to a limited space; hence they are called for in hospitals, ships, cities, and where there is a septic condition in the surrounding atmosphere.

In what form this septic condition exists is not a settled fact; various opinions prevail. Perhaps the healthy condition of the atmosphere is changed by both chemical conditions and the emanations from vegetable decomposition, under certain peculiar circumstances not perceptible to us. We know that epidemics prevail at certain times, but do not know the precise cause of such conditions of the atmosphere, nor are we able to prevent them; still we may, in many instances, combat the diseases caused by such poisons in the air, by remedies that counteract their effects when they have entered the system.

In many diseases there is a tendency to decomposition, as in typhoidal diseases, phthisis, scrofulosis, and some others. Here such remedies as increase the vegetative functions aid those that lessen the direct tendency to decomposition. When there is a septic condition in the air, constitutional vigor alone is often sufficient to overcome the external disturbing cause and maintain a state of health for a considerable time; hence tonics

may aid antiseptics in arresting decomposition already commenced in the blood.

Asepsin-Nascent Wintergreen.

Asepsin is a crystalline chemical, discovered and brought to the notice of the profession by Lloyd Brothers, of Cincinnati, Ohio. The composition is undetermined. It is of alkaline reaction, and has a sweet taste, strongly resembling that of wintergreen. It is an antiseptic, antiferment, and also an antiputrefactive, and yet is pleasant in odor and taste. It is non-poisonous, and thus is safer than most of the antiseptics. It dissolves in water, or mixes with water. If an acid be added, it decomposes, and globules of wintergreen oil soon form. It may be given by adding two grains to one ounce of water; dose one drachm. It has not been used internally, but the above solution is suitable as a wash to septic ulcers or cuts; and where the septic tendency is great, the strength of the solution may be increased to four grains to the ounce of water, but should be less in fresh wounds.

Baptisia Tinctoria—Wild Indigo.

This plant is indigenous to many parts of the United States, growing in dry and poor soils. Both alcohol and water extract its medical virtues.

Medical Properties.—Several properties are attributed to this plant, but its tendency is to the blood. It is somewhat astringent, but no article better deserves the name "antiseptic" than baptisia. In all cases of disease where there is a tendency to retrograde metamorphosis, baptisia is one of our most positive remedies. In old ulcers, where the discharges are offensive and acrid, this may be applied in the form of a poultice to the parts, and small doses of the tincture may be given internally, every two hours, say ten to twenty drops of the saturated tincture, and iodide of arsenic, in doses of one-tenth to one-fifteenth of a grain, may be given the alternate hours.

In typhoid and all malignant types of fever, where great

tendency to decomposition prevails, and where there is a putrescent odor about the excretions, small doses of baptisia should be given every two hours until this state is arrested. In threatened gangrene or mortification in cuts or wounds, the local use of this article, together with the internal administration, will always give prompt relief. In putrid sore throat a gargle, composed of a strong infusion, will do much good, and will aid other proper treatment in relieving the disease. In scarlatina maligna, and in malignant forms of small-pox, baptisia acts most promptly. The fluid extract, or saturated tincture, is the most suitable preparation for internal use, and an infusion of the fresh plant will answer for external use.

Baptisia is a remedy of very positive power where it is indicated, as it is in all that class of diseases characterized by a tendency to decomposition or ulceration, in which enfeebled capillary circulation will generally be found. It matters not whether it is a sore mouth or throat, or what other part may show this tendency to molecular death, baptisia is the remedy indicated. It is a true stimulant and tonic to the capillary system, an antiseptic. It may be always employed in any form of sore mouth or throat, when the above symptoms accompany the disease, as in stomatitis, ulceration, or cancrum oris, in cynanche maligna, and in the sore throat of scarlatina maligna. In these cases it may be used locally as well as internally. It is a specific to the condition upon which the above forms of ulceration depend.

In typhoid diseases, where there is a tendency to breaking down of tissue or softening, it is the remedy indicated. It is not the remedy in acute inflammation, but is indicated in that state of atony characterized by a dusky or livid discoloration, or blanched countenance, with a sluggish circulation, especially in the capillaries, and a marked tendency to sloughing and ulceration. The fluid extract may be given in doses of from twenty to thirty drops, every three hours; the saturated tincture, in doses of from thirty to sixty drops, every three hours.

Baptisin.—Baptisin is the active medical principle of the baptisia tinctoria or wild indigo. This article does not seem to have a specific tendency to any particular organ or tissue, but has a peculiar power to influence all the tissues and organs of the body. It seems to have the power of diminishing the quantity of the urine, lessening the transpiration through the skin, and also lessening the elimination of carbonic acid gas from the lungs. From this fact it is plainly inferred that by these diminished exhalations the blood soon becomes loaded with effete matter, and hence the medicine should never be continued too long.

Baptisin also impairs or lessens nutrition, and from this fact we infer that it prevents a too rapid decomposition of tissues, and hence that it is only applicable where the tendency to decomposition of tissues is too rapid, as in that septic condition causing mortification, and in that peculiar septic state that is connected with phthisis, scrofula, and other diseases of like character. In the above conditions it is directly indicated, and may be given with success.

In all diseases in which the chemical action overcomes the conservative vital powers of the system, hastening thereby that decomposition which always jeopardizes the perpetuity of the organization, baptisin will arrest the too rapid decomposition, and restore the equilibrium between primary and secondary digestion. In many chronic diseases the most prominent pathological changes consist in a too rapid disintegration of tissues by chemical action. Now, the most rational treatment, of course, is to arrest this rapid waste. Baptisin is the remedy indicated in such conditions. In the advanced stages of phthisis, where this waste of tissues is rapidly going on from an over-active state of the chemical forces, one or two grains of baptisin, given with cod liver oil and the hypophosphites, and a nutritious diet, will be valuable to arrest the night sweats, hectic fever, and profuse expectoration.

In scrofula, after the disease has advanced to the suppurative stage, baptisin will be found equally active in arresting the septic condition of the system, always connected with the disease. In scrofula, it may be combined with hydrastin, cod liver oil, chimaphilin and quinine. I have found that tonics and alteratives, thus combined with antiseptics, are much more active in arresting the chemical decomposition, as they in such cases increase the vital conservative forces of the system.

In gangrene and mortification, where the septic tendency is so very great that the vital forces are inadequate to resist the rapid decomposition going on, baptisin is the most efficient remedy I have ever tried, and may be used externally while it is given internally. In old sloughing ulcers, where there is a constant solution of continuity going on, so much so as to prevent union, baptisin may be applied over the surface with the happiest effects. The dose is from one-eighth of a grain to one grain. The dose of the trituration, one grain to ten of lactin, is from two to five grains.

Hydrogenii Peroxidum-Peroxide of Hydrogen.

The peroxide of hydrogen (H₂O₂) is one of the most positive antiputrefactives we have. It heads the list of antiseptics, both constitutional and local. The best authorities declare that it has as an antiseptic, sixty times the power of carbolic acid, twenty times the power of salicylic acid, and forty times the power of bichloride of mercury solution. It has been tested in a variety of diseases of a septic character, and proved active in them all. In diphtheria, its oxidizing effects upon the exudation, render it a most positive aid in the cure of this terrible disease, when applied locally by inhalation or by a spray apparatus, frequently repeated, say a twenty per cent. solution in water, by spray.

The peroxide of hydrogen is very much like ozone. It destroys bacteria very quickly, hence its very powerful antiseptic properties. Mixed with the poisonous secretions of a chan-

cre, it quickly destroys its power. It vitalizes the blood, by giving off oxygen to that fluid, keeps intact the nervous system, and thus prevents heart-failure, thereby often saving life. It promptly disinfects all putrid excreta, and destroys all septic germs. It cleanses simple, as well as syphilitic ulcers. It cleanses a carbuncle, or sloughing, sluggish ulcer, and renders it aseptic. It is usually used in the form of a ten to fifteen per cent. solution either in water or ether, which must be kept well corked.

Potassii Permanganas-Permanganate of Potassium.

Permanganate of potassium is a very direct antiseptic, and also a positive disinfectant. It is much used in hospitals, sick rooms, dissecting rooms, and wherever an antiseptic and disinfectant is required.

I have used it for several years, not only in the sick room, but as a wash to old ulcers, cancers, and in ozena, and as an injection in gonorrhea, leucorrhea, and wherever there was a tendency to retrograde metamorphosis in diseased parts. I have found it very active in arresting any tendency to decomposition. The strength of the solution should be varied to meet the peculiar conditions of the parts to which it is applied—from one to five grains to the ounce of water. As an injection in gonorrhea and leucorrhea, from two to four grains to the ounce of water, and as an antiseptic to old ulcers, from three to five grains to the ounce of water is generally sufficient.

As a disinfectant, from ten to thirty grains may be used to the ounce, or in some cases less will answer. As a wash for ozena, from one to two grains to the ounce of water, at first, is the usual strength that I have used. Sometimes I commence with one grain to the ounce, and gradually increase the strength to four or five grains, unless it should appear to produce irritation, in which case I at once reduce the strength. In leucorrhœa, where there is epithelial ulceration, I usually commence with one or two grains to the ounce of water or water

and glycerine, and gradually increase the strength as the ulceration heals, as it usually does in a few weeks.

I have found the permanganate of potassium one of the best remedies we have in the puerperal state. If a weak solution, say three or four grains to four ounces of water, is thrown up to the neck of the uterus, as soon as it has well contracted, every three or four hours, we need have no fear of puerperal peritonitis.

Xanthium Spinosum-Prickly Clot Bur.

There are three species of this plant: Xanthium spinosum, or prickly clot bur; X. strumarium, cockle bur, clot bur or sheep bur; and X. echinatum. Xanthium has pubescent stems, which are terete, with ternate spines from each side of the petiole. The leaves are alternate, three-lobed, ovate-lanceolate, pubescent on the upper surface, tomentose underneath. The florets are solitary and staminate, at the base of each spine; the involucre many-leaved, the fertile flowers, axillary and solitary. The fruit is armed with short prickles, and is two-celled, and white. It is very common along the coast; growing from three to five feet high, and is called prickly clotweed by the people. Its burs stick to wool and cloths.

Therapeutic Effects.—Xanthium has not been fully investigated, but has been used as an antidote to the bites of serpents, and in France, it has been used in cases of the bites of rabid animals, with reported success. The tincture of the fresh plant while it is in flower, has been mostly used, made by covering the plant in 98 per cent. alcohol; the dose of this would be from ten to sixty drops, every hour, or in urgent cases every fifteen minutes, until the dangerous symptoms have passed over. It may also be employed as a prophylactic against ague. In chronic chills, where they are followed by profuse sweats, it is a valuable remedy. It seems to arouse the nervous system to redoubled energy.

The Chlorides.

The chlorides of lime, sodium and potassium are all disinfectants, and before the introduction of permanganate of potassium, were much used in cases where such chemicals were indicated. Darby makes a combination of the chlorides with the permanganate of potassium, which has an extensive sale, but which is no better than the permanganate of potassium alone. The chlorides of lime or sodium may be used, dissolved in water, one or two ounces to the pint, or stronger, according to the intensity of the septic condition of the room, hospital, or other place to be disinfected.

The chloride of potassium is chiefly used as a wash in diphtheritic inflammations, and anginose inflammations of the throat and mouth, for which it answers a good purpose. It is also antiseptic to other ill-conditioned ulcerations of various parts.

Acidum Sulphurosum-Sulphurous Acid.

Sulphurous acid is a valuable antiseptic and disinfectant, and may be used in many conditions of the system, as in typhoid diseases, or to disinfect rooms, hospitals, etc. It may be diluted with two, three or four parts of water, as may be demanded.

Sodii Sulphis—Sulphite of Sodium. Sodii Hyposulphis— Hyposulphite of Sodium.

These salts should be kept from the atmosphere, as they soon change if exposed to the air. Dose, five to thirty grains every three or four hours. These salts are used in zymotic affections, where there is always a tendency to downward metamorphosis. Especially are they to be used where the tongue is thick, pasty, with a dirty-white coat over it. In typhoid fever, small-pox, diphtheria, and in many cases of puerperal fever, there is a decided septic condition, which calls for these, or some other anti-septic. The remedies antagonize the septic condition in the blood.

Locally applied, these salts do good in diphtheria, cynanche maligna, certain malignant forms of catarrh, erysipelas and surgical fever. They arrest the development and growth of fungi, hence, in diseases of fungous origin, they are directly indicated, and will certainly prove curative.

In dyspepsia, from sarcina ventriculi, these sulphites may be given in doses of three to five grains just before each meal, with good effect. If the patient will alternate these salts with nux vomica or hydrastis canadensis, and use light diet, they aid the tonics in the cure. When locally applied, they are very beneficial to some skin affections, attended by itching and suppuration. They should be applied in strong solution, three times a day.

Bro-Chloralum.

This is a disinfectant prepared by Tilden & Co., of New Lebanon, N. Y., and seems to be highly esteemed by those who have tried it. It is represented as a powerful deodorizer and disinfectant, alterative and styptic. It may be diluted, one part to ten of water, as a deodorizer, and as an application to old fetid ulcers, cancers and fetid feet, etc. Iodine also possesses antiseptic powers, and so does the charcoal of wood, but they are not much used now.

Thymol-Thymol.

This is a steaoptene contained in the oil of thyme, and in the volatile oils of several other plants. It occurs in large, hexagonal crystals (C₁₀H₁₃, HO), and has an aromatic odor, and pungent taste. It is soluble in twelve hundred parts of cold water, and nine hundred parts of boiling water, and in one part of alcohol at 59° F. It is very freely soluble in fats and oils, solutions of chloral, ether, chloroform and alkalies in solution. It liquefies with camphor. Dose, half a grain to two grains.

This article in its antiseptic properties stands between carbolic acid and oil of turpentine. Like carbolic acid, it is a valuable antiseptic and disinfectant. It irritates the skin and mucous membranes, and is an anæsthetic, paralyzing the terminal bulbs of the sensory nerves. In large quantities, it paralyzes the nerve centers in the spinal cord, and in the medulla, thereby lessening reflex action, slowing respiration, lowering arterial tension and the temperature of the body. In larger doses, it produces first weakness, then come and finally death.

In doses of twenty to thirty grains per day, it produces epigastric heat, sweating, deafness and ringing in the ears, a sense of constriction in the forehead, and increase of urine of a dark color. It is eliminated by the lungs and kidneys. It is less poisonous, and a more powerful antiseptic than carbolic acid. It is employed in lieu of carbolic acid in dressing wounds, as a gargle, in spray or inhalation, in diphtheria, or in the form of an ointment to ringworm, psoriasis, etc.

Acidum Carbolicum-Carbolic Acid.

Carbolic acid is obtained from coal tar, by fractional distillation and purification. In its pure state it is a solid. It crystallizes in minute plates of long rhomboidal needles, of a clear white color, having a peculiar odor, similar to creosote, and an acrid, burning taste. It readily deliquesces on exposure to air, and ultimately becomes a fluid. It is soluble in twenty parts of water, and the solution, if the acid be pure, is also colorless, but if impure, it is of a brown color. It is readily dissolved in alcohol, ether, acetic acid and glycerine, and the volatile and fixed oils. For internal use, one grain to ten drops of alcohol is a convenient form for administration.

Medical Uses.—Carbolic acid is a valuable disinfectant and antiseptic. It not only arrests the tendency to destructive decomposition in wounds and ulcers, but given internally in doses of a few drops in water, is valuable in many diseases of a septic tendency. It also influences the cerebro-spinal centers in a very marked manner. When applied in strong solution, it destroys the growth and life of vegetables and animals, such

as infusoria, bacteria, vibriones, microscopic fungi, and also small insects.

Its local application, say ten grains to the pint of water, is valuable as a douche in cases of fetid purulent discharges from the nose. The discharge frequently disappears after a few days, if the above solution be used three times a day. So also in cases of acrid and offensive leucorrhœa, if used say fifteen or twenty grains to the pint of water, it soon corrects the acridity of the discharge, and lessens the leucorrhœa. In aphthous affections of the mouth and throat, a gargle will be found to act very promptly in arresting the ulcerative process.

The external application to some moist skin diseases has recently proven very satisfactory to me. In the treatment of those forms of skin affections attended with itching, it acts very promptly, and may be used of moderate strength. I usually dissolve a drachm or two in an ounce of glycerine, and apply three times a day for a few days, then order it diluted with water.

It is applicable in leprosy, prurigo, pityriasis, lupus, carbuncles, indolent and irritable ulcers, acne, impetigo, scabies and psoriasis. The above affections are always much mitigated by the local application of the acid, diluted with glycerine; at the same time such internal remedies as are indicated may be given.

It is a valuable remedy for the morning vomiting of pregnant females, often arresting it after all other remedies have failed. In this condition a few drops may be suspended in two or three drops of glycerine, then taken in water enough to prevent its acrid action upon the mucous membranes. It is also a valuable disinfectant for privies, water-closets, sick rooms, etc.

In scarlatina maligna, with a putrescent tendency, carbolic acid may be used locally as a wash to the throat, and small doses taken internally, every two or three hours, in alternation with such other remedies as may be indicated in each individual case. Some writers speak very highly of this remedy in confluent variola; and no doubt it would have considerable influence over that disease. It is stated that in those cases in which carbolic acid has been used, both locally and internally, the pustulation was all dried up by the twelfth day. It is a very positive remedy against pediculi, and vermin of all kinds upon man or brute. It is also a good dressing for cancer.

Terebene.

Terebene (C₁₀H₁₆) is a clear liquid, of an odor like that of pine wood, and is prepared by the action of sulphuric acid upon oil of turpentine. It imparts the odor of violets to the urine, but does not mix with water. It is given in doses of five to fifteen drops, on sugar. And as it is less irritating than turpentine, and possesses most of its medical properties, it is preferable to that article in most cases. Dr. Murrell, of England, praises it in winter cough and emphysema of the lungs, and in flatulence, and flatulent dyspepsia. In gleet, and chronic cystitis, it is much esteemed. In the form of spray, it is a valuable remedy in post-nasal catarrh, and with cocaine, in the form of spray, it is a good application in hay-fever and coryza.

Resorcinum—Resorcin.

Resorcin $[C_0H_4(OH)_2]$ is a diatomic phenol, obtained from certain resins. It occurs in rhombic prisms or plates, of neutral reaction, without odor, and with a sweetish acrid taste. It is soluble in one and a fourth parts of water, also in alcohol, ether, etc. Dose, five to fifteen grains. It is most safely given in doses of five grains every two hours. It does not irritate the mucous membranes as does carbolic acid, but is as active as an antiseptic as carbolic acid. It is an anti-ferment, arrests decomposition, and destroys the low organisms. It does not produce inflammation when injected beneath the skin. Large doses, say twenty to thirty grains, cause heat in the stomach, and lower the bodily temperature; hence, it is also antipyretic.

CHAPTER XIX.

Anthelmintics.

A NTHELMINTICS are a class of remedies that directly tend to destroy or expel worms from the alimentary canal. They do this in various ways. Some directly destroy the worms by their poisonous influence, or so weaken them that they pass off with the fæces; others, again, destroy the worms by mere mechanical means. Drastic cathartics, by increasing the secretions and exhalation of materials from the alimentary canal, tend to act as indirect anthelmintics.

There is a diversity of opinion among physicians in regard to the fact whether worms injure children to the extent that it is supposed by non-professionals they do; but while I do not think that they are half so detrimental to the health of children as the common people think they are, yet when the child is sick, and the contents of the alimentary canal become offensive to them, the worms begin to migrate, to find a more congenial locality; they then become a source of irritation, and increase the morbid impressions, especially upon the nervous system, producing spasms, etc. Under this conviction, I have always removed those verminous pests from the sick child as soon as possible.

Spigelia Marilandica-Pink Root.

The Carolina pink (natural order Spigeliaceæ) is an herbaceous plant, indigenous to the southern parts of the United States. The root of the pink root is perennial, and consists of many slender fibers; the stems are also numerous, and grow from one foot to one and a half feet high, of a purplish color,

with ovate-lanceolate, sessile leaves, growing oppositely on the stalk. The flowers are of a carmine color, funnel-shaped, and appear in May and June, sometimes in July. The root is the part used, and consists of numerous slender, brownish fibers attached to a dark-brown caudex.

It has a taste at first sweetish, then bitter, and a faint smell. It loses its virtue by age, and hence should be used fresh. Its value is supposed to depend on a bitter principle, which is yielded readily to boiling water. It contains also a rather volatile oil, resin, a little tannic acid, and other matters. It is found mostly upon good red land. It is plentiful in South Carolina and Georgia, and is generally known by its beautiful red or carmine flower, much like a pink. There is another flower that resembles it, but is not so smooth.

Medical Effects and Uses.—Spigelia is one of our most positive anthelmintics, acting without any sensible impression on the system when given in proper doses. In large quantities, however, it sometimes vomits and purges, and in great excess it is said to act as a narcotic poison, producing vertigo, dilated pupils, convulsions, and finally death, but it takes large quantities to produce a toxic effect. I always combine it with senna, or jalap and senna, or give oil and turpentine in proper doses every second or third day. When given with a cathartic there is no great liability of producing toxic effects. As an anthelmintic against the lumbricus (the round worm), it is one of our most certain and safe remedies.

The dose of the powdered root is from one to two drachms for an adult; for a child three or four years old, from ten to twenty grains, three times a day, with senna, or jalap and senna to operate, or the cathartic may be given every second morning. It may be used also in the form of an infusion or syrup. The infusion is made by adding half an ounce of spigelia to one pint of boiling water, and to this half an ounce of senna may be added. The dose of the infusion is from half an ounce to one ounce for a child two or three years of age; for an adult, four

to eight ounces may be given three times a day. The fluid extract is now officinal; the dose for a child two or three years old, is five to ten drops three times a day. The fluid extract of spigelia may be mixed with equal parts of fluid extract of senna, and flavored with the oils of anise and caraway; the dose for a child, one or two years old, is from thirty to sixty drops.

I make a compound syrup of senna and spigelia by slowly infusing two ounces of each in a pint of water until the strength is exhausted, then straining it off clear, and adding one pound of sugar, melting and forming a syrup; of this, one or two drachms is a dose for a child two or three years old. To this syrup I now add from four to eight grains of santonin to the ounce; dose the same. I have used the above compound syrup of senna and spigelia with the best of results; and when the child fails to pass the lumbrici after this has been continued three or four days, I am satisfied that it has none. During a practice of thirty-one or two years I do not remember a single failure with this preparation, properly given.

Chenopodium Anthelminticum—Worm-Seed.

The chenopodium anthelminticum, or Jerusalem oak (natural order Chenopodiaceæ), is indigenous to this country. The root is perennial. The plant grows on rich land, mostly about houses or barns, to the height of from three to five feet. The leaves are alternate, oblong-lanceolate, sinuated and toothed, of a yellowish-green color. The flowers are numerous and of the same color, arranged in long terminal panicles. The seeds are officinal, and are small spherical grains, of a dull, greenish-yellow or brownish color, of a peculiar offensive smell, and of an aromatic, pungent taste. They owe their virtues to a volatile oil, which is obtained by distillation. This is the oleum chenopodii, or worm-seed oil of the shops.

Effects.—The seed, root or leaves of the chenopodium are anthelmintic, and, but for its pungent taste, and very strong and offensive smell, it would be used a great deal. The people take it, mixed with syrup or sugar, with success. The dose of the seed is from twenty to thirty grains, for a child of one or two years old, repeated three times a day, for three or four days, then followed by a brisk cathartic. The dose of the oil is five to eight drops on sugar, three times a day.

Santonica-Levant Worm Seed.

Santonica is the unmatured flowers of artemisia cina, which is a native of Persia. Some other species of artemisia are used in Europe, under the name of the Levant worm seed. These unmatured flowers resemble small seeds, and are about a line in length, of an oval form, obtuse at the ends, and of a greenish-brown color, a strong, rather terebinthinate odor, and bitter, camphoraceous taste. They contain a bitter principle, termed santonin, a volatile oil and resin.

Santonin.—Santonin is the anthelmintic principle of santonica, and is made by digesting santonica and lime in diluted alcohol, adding acetic acid, crystallizing, then boiling with alcohol, digesting the tincture with animal charcoal, filtering and recrystallizing. It is a weak acid (C₁₅H₁₈O₃), occurring in colorless, shining, flattened prisms, without smell, nearly tasteless at first, but soon becoming bitter. It turns yellow when exposed to the light. It dissolves in two hundred and fifty parts of boiling water, but it is nearly insoluble in cold water; it dissolves in forty-three parts of cold alcohol, and in three parts of boiling alcohol, or in seventy-five parts of ether.

In over-doses, this article produces vomiting, giddiness, stupor, coldness of the skin and clammy perspiration, dilated pupils, and, finally tetanic convulsions. It so affects the vision as to make objects look yellow. It is readily eliminated through the kidneys, coloring the urine yellow. It should never be given in very large doses, as it acts as a poison to the lumbrici without injury to the patient. It dissolves in olive oil, and its best effects are obtained with this solution.

Medical Effects and Uses.—Santonin, in doses of from half a grain to three grains, according to the age of the child, in syrup or glycerine, is a very safe and certain anthelmintic for the lumbrici. For children one or two years old, I add from four to eight grains to the ounce of the compound syrup of spigelia, and this makes a very certain vermifuge.

Troches of santonin (called worm candy), are made by rubbing together half an ounce of santonin and the same quantity of tragacanth, with eighteen ounces of pure sugar, then wetting with orange-flower water, or rose water; form a mass, to be divided into four hundred and eighty troches, each one containing half a grain of santonin. The dose will be from one to four, three times a day, according to the age of the child; and it should be followed, every two or three days, by a cathartic of oil and turpentine, or jalap and senna. With the santonin and spigelia, I have always succeeded in removing the lumbrici.

Azedarach-Pride of China.

The China tree (natural order Meliaceæ), is a native of Asia, but is extensively cultivated in other countries for its shade. It is a common tree in all the southern parts of the United States. It has a very bitter, nauseous taste, and yields its virtues to boiling water. It should be used fresh, as age destroys its properties.

Medical Effects.—In medium doses it acts much like spigelia, but in over-doses it produces a species of intoxication, and if pushed still further it is a narcotic poison. The rind of the seed is more narcotic than the bark. It should always be used with caution, and in the form of an infusion; say four ounces to two pints of water, boiled slowly. The dose then would be from one-fourth to half an ounce, every four hours, for two days; it should be followed by a cathartic.

This was much used years ago, but owing to the fact that by the too free use of it some children were poisoned, it has fallen into disuse. I have no doubt but that a fluid extract could be made of the bark in the Fall of the year, that might be used with safety, but its bitter taste will always be an objection to its general use.

Chelone Glabra-Balmony.

Chelone glabra, and chelonin, have already been noticed as tonics and as stimulants to the functions of the liver; but the saturated tincture, the fluid extract, or the solid extract of chelone glabra or the powdered chelonin will aid in ridding the bowels of parasites. I have often combined the chelonin with spigelia and santonin with the most successful results; and, while it acts upon the parasites as a true vermifuge, it so tones up the mucous membranes of the various parts of the alimentary canal as to prevent a reaccumulation of the worms. Prof. Wm. Paine, of Philadelphia, says: "In a case of a girl affected with chorea, where a large variety of remedies had been tried in vain, I gave chelonin. It expelled from the alimentary canal a large number of ascarides lumbricoides, which cured the chorea."

As a vermifuge, chelonin may be given in simple syrup, from one or two grains to the ounce, for small children, or from two to four grains for larger ones. In patients very subject to worms, I usually give the chelonin for some time after they pass the worms. In this way it so tones up the digestive powers as to lessen the tendency to the parasites. The usual dose is from one-fourth to half a grain for children.

Apocynum Cannabinum—Indian Hemp.

This article and the A. androsemifolium have already been described under another class of remedies, but they are anthelmintic, especially against the ascaris vermicularis or rectum worm. I have never seen that it has been used by any other physician except myself. I found out the anthelmintic properties of this article by giving it to an old lady for a protracted

headache, for which I had previously found it to be very good, and after giving the powdered bark of the root in doses of three or four grains it produced a cathartic effect, and expelled a large number of the ascarides vermicularis. Noting this effect, I repeated it in some other cases with like results, since which time it has been my remedy for these very troublesome parasites.

I usually give it in one or two-grain doses, or the saturated tincture in twenty-drop doses for two or three days; then give an injection of cold water, or a solution of sulphate of iron, two grains to half a cup of water. This never fails to dislodge the worms from the folds of the rectum. I have been troubled with them myself, and have never failed with the above remedies. The apocynum should be freshly dried and pulverized, and used before it is too old.

Mucuna Pruriens-Cowhage.

Cowhage consists of the hairs of the pods of the mucuna pruriens (natural order Fabaceæ), a plant of the West Indies. It is a perennial, climbing plant. The pods are some three or four inches in length, and shaped like the italic f, and are covered with brown, bristly hairs, which stick to the hands when the pods are handled. The pods are dipped into syrup or molasses, and the hairs are scraped off, and kept for use. The dose of the liquid, thus prepared, is a tablespoonful for an adult, and a teaspoonful for a child, night and morning, for several days, then followed by a cathartic.

Cowhage acts mechanically to destroy worms, and may be given for the destruction of any kind of parasites that may inhabit the intestines. It acts like the filings of tin, which are used also to cut up the worms, especially the tapeworm. It is convenient to give with the oil of male fern, which will be noticed next. Cowhage may be given for the threadworm, a small thread-like worm that inhabits the stomach and upper bowels, and is very hard to dislodge from its position. If the

cowhage be given a few days, and followed by a dose of jalap and senna, it will often prove most effective.

Aspidium Filix Mas-Male Fern.

Aspidium filix mas or male fern (natural order Filices) is a plant found in almost all parts of the world. It has a horizontal, perennial root, from which spring numerous annual, oval, lanceolate, acute, bright-green pinnate fronds for leaves, from one to four feet high. The leaflets are deeply lobate, oval, crenate at their edges, and gradually diminish from the base of the pinna to the apex. The portion used as an anthelmintic is the rhizome. It is a long, cylindrical caudex, covered with portions of the stipes. It has a sweetish taste at first, but becomes bitter, astringent and nauseous in taste after long chewing. It should be used fresh, as age impairs its virtues very much. Its medical virtues depend mainly upon a volatile and fixed oil, which dissolves most readily in ether. I employ the oil.

Effects and Uses.—The male fern is tonic and astringent, and markedly anthelmintic. It is used for the expulsion of the tenia, which it is thought to destroy by a specific action. It is especially destructive of the borthriocephalus latus, the Swiss variety of tenia. The dose of the powder is from one to three drachms, night and morning. The dose of the oil is half a drachm to one drachm, night and morning, followed by a cathartic.

Punica Granatum-Pomegranate.

The bark of the root (granati radicis cortex) or of the rind of the fruit (granati fructus cortex) of the punica granatum is used for the expulsion of the tenia. It is a powerful styptic, and it is likely that this property renders it a very positive agent against tenia. It is usually given in decoction, two ounces of the fresh bark to the pint of water, boiled to half a pint. Dose, two to four ounces, every one or two hours, followed by a brisk cathartic.

The fluid extract of granatum is a very positive remedy for the expulsion of the tapeworm. Where the fresh bark of the root can be procured, it may be given in the form of a strong infusion, on an empty stomach, followed by a brisk cathartic after one or two hours. The hull of the fruit has the same effect, and may be used in the same way. This is a very valuable remedy, and will succeed if given freely, and then followed by a brisk cathartic of oil and turpentine.

Oleum Terebinthinæ-Oil of Turpentine.

Turpentine is also used as a remedy for tænia and other worms. In doses of half an ounce to one ounce, combined with castor oil, it will doubtless expel the lumbrici, and may sometimes expel the tænia; but it is not safe every time to give it in large doses, as it affects the brain as a stimulant, and often produces strangury by its irritating effects upon the neck of the bladder, and I have known the kidneys to be very seriously injured by large doses. It may be combined, however, with castor oil, in doses of one or two drachms, and given after other anthelmintics. For children, from five to ten drops may be given in castor oil or sweet oil, to work off the more direct anthelmintics, which have been described above.

Brayera Anthelmintica-Koosso.

Koosso is the unripe fruit of the brayera anthelmintica (natural order Rosaceæ), a native of Abyssinia. It is much used in Europe for the expulsion of the tænia. The flowers also are officinal, and may be given in the form of an infusion, say half an ounce of the flowers infused in half a pint of water, and taken in a short time. This article has gained considerable reputation recently as an anthelmintic, but I cannot speak from personal observation.

Rottlera Tinctoria-Kameela.

Kameela is the glandular powder and hairs obtained from the capsules of rottlera tinctoria (natural order Euphorbiaceæ), a small tree growing in the East Indies and Hindostan. The powder is very inflammable, and of an orange-red color, with but little taste or smell. It dissolves in ether and boiling alcohol, but not in water. A resinous substance, called *rottlerin*, is now supposed to constitute its medical virtues.

Kameela is regarded as a very active teniacide. Dose of the powder, one to two drachms, suspended in syrup. The tincture in ether may be made by adding six or eight ounces to the pint. Dose, one to two drachms, followed by cathartics. This is highly recommended for the expulsion of the tapeworm.

Pepo-Pumpkin Seed.

The seeds of the cucurbita pepo, or common pumpkin, are one of our best, and at the same time, most harmless teniacides. They owe their activity to an oily principle, soluble in ether, chloroform, and alcohol.

One or two ounces of the seeds may be deprived of the outer envelope, and then beaten to a paste, with fine sugar or rock candy, and diluted with milk or water, of which the patient may take freely, on an empty stomach, followed in a few hours by a dose of oil and turpentine. A fluid extract is now prepared with alcohol and glycerine, and is a good preparation. The dose of this is from half an ounce to one ounce, repeated every four hours, and followed each day by a brisk cathartic of one drop of croton oil in one ounce of castor oil. This acts very briskly, and in order to expel the tapeworm it is necessary to have an article that will act in this way.

I have used the pulp of the pumpkin seed with full satisfaction. I have never tried the fluid extract, but if made properly, its use would doubtless be attended with the best success. It is to be remembered that all remedies for tapeworm should be given on an empty stomach.

CHAPTER XX.

Aromatics.

OST aromatics owe their peculiar properties to the essential oils, or to certain volatile oils that they contain. Locally applied, they are as a rule powerful irritants, and when taken into the stomach in over-doses they act as acrid poisons. They will evaporate in warm weather, and are completely volatilized by a high degree of heat; hence decoctions and extracts by heat are improper preparations of the aromatics. The distilled oils are soluble in ether and alcohol but only partially so in water; they are highly inflammable. They are generally composed of carbon, hydrogen and oxygen, and are very rapidly absorbed by oxygen on exposure, and become much thicker, less odorous, and of higher color, and eventually they are converted into resin or oleo-resins. These may be made into tinctures or essences, by tincturing them in pure alcohol; then they may be taken in simple syrup or sweetened water. The essence of peppermint may thus be made, and colored with a little of the The essence of cinnamon may be made the same way, and colored with a little of the tincture of the bark, and will be as active as that which comes already prepared.

Capsicum-Cayenne Pepper.

Capsicum is the fruit or seed pod of the capsicum annuum or C. fastigiatum and other species of capsicum (natural order Solanaceæ). They are American tropical plants, naturalized now in most warm climates, and cultivated in gardens. Capsicum annuum is an annual, about two feet high, with crooked, branching stem; leaves pointed, ovate; the flowers are greenish-white;

the pod is of a yellowish red color, two or three inches in length. These pods are dried and ground, and constitute the capsicum of commerce. The African cayenne is the best variety, and when powdered is of red color, but fades when exposed. It has a strong aromatic smell, and an acrid, burning taste. It contains a volatile oil, an alkaloid, capsicin, and a resin.

Medical Effects.—Capsicum is a stomachic, and is used as such in torpid conditions of the digestive organs, or as an adjunct to other articles, to arouse the susceptibility of the stomach to the action of other remedies. It is a good remedy in cynanche maligna and scarlatina anginosa. The dose of the powder is from five to ten grains, in pills. The tincture may be made by adding six ounces to one pint of alcohol. Dose, thirty drops.

Piper-Black Pepper.

Black pepper is the unripe berries of piper nigrum (natural order Piperaceæ), a running vine of the East Indies. It has an aromatic odor, and a spicy, hot, pungent taste. It contains a volatile oil, an acrid resin, and a crystalline alkaloid, called *piperin* or *piperia* (C₁₇H₁₉NO₃), which has been much used as an antiperiodic, but is now seldom employed.

Medical Effects.—Black pepper is a stimulant aromatic, and is much used as a condiment; but it may be used also as an adjunct to the bark, or its preparations, in the treatment of intermittent fevers, where the system is in a languid state. I have often used the piperin with quinia, in such cases, with good effect. As an aromatic it is much used by the people in common colic, and often with success.

The dose of the powder is from five to ten grains. The dose of the oleo-resin is one to three drops. As a condiment I think it quite healthy, if used in moderation. It arouses the torpid stomach, and very probably increases the flow of gastric fluid; but, for this purpose, I believe the capsicum is preferable, as it has less tendency to produce irritation, and yet is equally as exciting as the black pepper.

Cinnamomum—Cinnamon.

Two varieties of cinnamon are commonly known: The Ceylon cinnamon, which is the bark of the cinnamomum Zeylonicum (natural order Lauraceæ), a tree growing in Java, Ceylon and China, and the Chinese cinnamon or cassia, which is the bark of the cinnamomum aromaticum (natural order Lauraceæ), a tree growing in China. The Ceylon cinnamon is regarded as the best. It has a fragrant odor, and a warm, aromatic, sweetish, slightly astringent taste. It contains a volatile oil, a little tannic acid, mucilage, lignin and other principles.

Effects and Uses.—This is a mild and pleasant aromatic stimulant, with some astringency. It is much used as a carminative, and to conceal the taste of other medicines. The tincture may be made by adding six ounces of the crushed bark to alcohol (76°) one pint. Dose, twenty to thirty drops. The dose of the powder is ten to thirty grains. The oil of cinnamon may be given in from two to five drops. Aqua cinnamomi (cinnamon water) is made by rubbing half a drachm of the oil of cinnamon with sixty grains of magnesia, then adding two pints of water, and filtering. This is used to conceal the bad taste of other medicines. I have used cinnamon as a styptic.

Myristica-Nutmeg. Macis-Mace.

The above aromatics are portions of the fruit of the myristica fragrans (natural order Myristicaceæ), a tree growing in the Molucca Islands, also cultivated in Sumatra, Java, and other parts of the East Indies, and now introduced into the West Indies and the Isles of France and Bourbon. The fruit is pyriform in shape, about the size of a small peach, with a fleshy pericarp, opened by two longitudinal valves. Within the pericarp is the arillus, a scarlet-colored reticulated membrane, which on drying turns brown and becomes brittle, constituting the mace of commerce. The kernels of the fruit are the nutmegs. They are steeped in lime water to prevent insects from attacking

them. Mace has a pleasant, aromatic smell, and a warm, bitterish, pungent taste. Nutmegs have a very pleasant, fragrant odor, and a warm, highly aromatic and agreeable taste. They both contain a volatile oil.

Effects and Uses.—Nutmegs are very agreeable, aromatic stimulants, and much used as carminatives, as flavoring ingredients to various articles of diet, and so is the mace. They are not much used as medicines. Nutmegs have a narcotic effect in large doses.

Caryophyllus—Cloves.

Cloves are the unmatured blooms of caryophyllus aromaticus (natural order Myrtaceæ), an evergreen tree, growing in the Molucca Islands. They have a strong, fragrant odor (much used by young men to conceal the smell of whisky on the breath), and a hot, acrid taste. They contain an oil, pungent and volatile, tannic acid, a resin, and two crystalline principles, termed caryophyllin and eugenin. The oily portions consist of two, a heavy and a light oil; the heavy oil is called caryophyllic acid. This oil is much used externally.

Effects and Uses.—The oil of cloves is much used as a stimulating application to decaying teeth, and in liniments for rheumatism. Cloves are among our most stimulating aromatics; they are also much used as a condiment, and as a flavoring ingredient. Dose, five to ten grains. The infusion is made by adding from two to four drachms to one pint of water. Dose, half an ounce to one ounce. It acts as a grateful stomachic for nausea. The dose of the oil is from one to two drops, in syrup or sweetened water. It should never be used where there is any excitement of the pulse, as it is a stimulant, and, like nutmeg, may do harm under such conditions.

Pimenta-Pimento, Allspice.

Pimento, or allspice, is the unripe berries of the eugenia pimenta (natural order Myrtaceæ), an evergreen of the West Indies and of South America. It is generally imported from Jamaica. It is very highly aromatic, of an agreeable odor, and a strong taste, resembling that of cloves. It is principally used as a condiment, imparting a fine flavor to many articles of diet. The oil (oleum pimentæ) has a brownish-red color, and consists of a heavy and a light oil; the first is identical with caryophyllic acid; the dose of the oil is from three to six drops, in syrup.

Oleum Cajuputi—Oil of Cajeput.

This is the oil extracted from the leaves of the melaleuca cajuputi (natural order Myrtaceæ), a tree growing in the Molucca Islands. It is a volatile oil and very highly aromatic, and a diffusible stimulant. It is transparent, of a greenish color, and has very penetrating odor, very similar to that of camphor or cardamon, and a pungent taste.

Medical Effects.—It is an excellent aromatic stomachic, for nausea. It is also an efficient antispasmodic in colic and cholera, and cholera morbus. Dose, from one to five drops. It is a good counter-irritant.

Oleum Terebinthinæ-Oil of Turpentine.

The oil of turpentine, also called spirits of turpentine, is an aromatic stimulant, and of much service in typhoid fever where the bowels are tympanitic and ulcerated. It is also much used where there are morbid discharges from the mucous membranes, hæmorrhages, nephritic and calculous affections, and as an anthelmintic in tænia. In tympanites, an enema of the oil of turpentine, incorporated with the yolk of eggs, is a very valuable remedy, and seldom fails to give relief. It is a valuable counter-irritant.

The dose as an aromatic and stimulant, is from five to thirty drops, every three hours. As a fine liniment, for sprains, bruises and rheumatism, I use one pint of turpentine, one pint of strong apple vinegar, one ounce of oil of cajuput, one ounce of oil of sassafras, the yolks of three or four eggs, well shaken. The above makes one of the best liniments that I have ever

tried. As a counter-irritant, I use spirits of turpentine, two or three parts, to one part of lard or sweet oil, and apply on a flannel cloth. This is a favorite application with me in pneumonia, pleuritis, and hysteritis. It was a favorite application of Dr. Dewees of Philadelphia, in what is commonly called child-bed fever, and it is a good application in such peritoneal inflammations. I have often used it with happy effect.

Zingiber-Ginger.

Ginger is the root of the zingiber officinale (natural order Zingiberaceæ), an herbaceous perennial plant, growing to the height of three feet, with long, lanceolate leaves, and yellow flowers. It is cultivated in almost all countries, especially in tropical climates. The white, or Jamaica ginger, is that which has been scraped and dried; the black ginger is that which has been taken up and scalded in hot water, without being scraped and dried. The black ginger is imported from the East Indies; the white ginger comes from the West Indies. They both have a peculiar odor, and a warm, aromatic, pungent, biting taste, and impart their virtues to warm water and alcohol. They contain a pale-yellow volatile oil, resin, and some starch.

Effects and Uses.—Ginger is a pungent, stimulating aromatic, and very much used as a stomachic and as an aromatic in colic of a flatulent character. It is also used as a diaphoretic in catarrh. Ginger is often employed to correct the unpleasant taste of nauseous medicines. The dose in powder is from ten to twenty grains. The infusion may be made by adding half an ounce to one pint of boiling water. Dose, one to two ounces. The tincture may be made by adding eight ounces to one pint of alcohol (96°). Dose, five to ten drops. This is about the strength of the fluid extract.

Cardamomum—Cardamom.

Cardamom is the fruit of the elateria cardamomum (natural order Zingiberaceæ), a perennial plant, growing from six to ten feet high, in the mountains of Malabar. The seeds are of a

grayish or brownish-yellow color, and have a pleasant aromatic odor, and a warm, aromatic taste. They contain volatile oil, a fixed oil, and some starch. The oil, when pure, is colorless.

Effects and Uses.—Cardamom is a very pleasant aromatic, and is much used as a mild stomachic and carminative, and as an adjuvant to correct the ill flavor of other medicines, also to expel gas in flatulent colic. The dose is five to ten grains. The tincture is the most proper form for use, and may be made by adding eight ounces to one pint of alcohol (96°), the dose of which would be from thirty to sixty drops. The compound tincture of cardamom of the dispensatory is made with three hundred and sixty grains of cardamom; one hundred and twenty grains of caraway; three hundred grains of cinnamon; sixty grains of cochineal, percolated with diluted alcohol until two pints and a half of tincture is obtained, to which is added two ounces of clear honey. The dose is from thirty to sixty drops. A better preparation may be made by adding four ounces of cardamom, four ounces of dioscorea villosa, and two ounces of fennel seed to one pint of alcohol (60°). Dose, thirty to sixty drops.

Acorus Calamus—Calamus, Sweet Flag.

Calamus is the rhizome of the acorus calamus (natural order Araceæ), which is a marshy plant, with long lanceolate, or sword-shaped radical leaves, cultivated in gardens. It has a strong, fragrant odor, and a warm, rather bitterish, aromatic, biting taste. It contains a volatile oil, resin extractive, etc.

Effects and Uses.—It is a very pleasant and efficient aromatic, and much used in domestic practice in the colic of children. The tincture, which is made by adding eight ounces of calamus to one pint of alcohol (60°), combined with equal parts of the tinctures of assafætida and dioscorea villosa, is very efficient in colic of a flatulent character, in children or adults. The dose is from ten to twenty drops for children,

according to the age of the patient, and from one to two drachms for adults.

Dioscorea Villosa-Wild Yam.

Dioscorea is a twining vine, with a perennial root. The leaves are from two to four inches long, glabrous on the upper surface, with soft hairs on the under surface. The flowers are funnel-shaped, and of a pale, greenish-yellow color, flowering in June and July. The root is the part used. It is long, branched, crooked and woody.

Medical Effects.—Dioscorea is aromatic in a high degree. It is antispasmodic, and is a superior remedy in colic of a spasmodic character. The dose of the essential tincture is from twenty to sixty drops.

Gaultheria Procumbens - Wintergreen, Partridge Berry.

Gaultheria procumbens, partridge berry, deer berry or tea berry (natural order Ericaceæ), is an indigenous, small, evergreen plant; it has one or two reddish-colored stems, a few inches high, with obovate, coriaceous, cerrulated bright-green leaves, and ovate, white, five-toothed flowers, followed by scarlet-colored berries. The leaves are the part used, and contain a volatile, stimulating oil (oleum gaultheriæ), which in its recent state is colorless, but finally becomes red, and is the heaviest of the volatile oils.

Medical Uses.—An infusion of the leaves is used as an aromatic and gentle stomachic; an essence of the oil, one drachm to the ounce of alcohol, is also used as a carminative and stomachic. Dose, one to two drachms, as required.

Aurantii Amari Cortex—Bitter Orange Peel. Aurantii Dulcis Cortex—Sweet Orange Peel.

Both the bitter and the sweet orange (natural order Aurantiaceæ) are employed to flavor other medicines. The flowers (aurantii flores) yield that delightful volatile oil called the oil of neroli, and are used in the form of orange-flower water.

The tincture of orange peel is made by adding four ounces of orange peel to the pint of alcohol.

Spiritus Lavandulæ Compositus—Compound Spirits Lavender.

This is made by dissolving one ounce of the oil of lavender in three pints of alcohol, with half an ounce of oil of rosemary, one-quarter of an ounce of oil of cloves, one-quarter of an ounce of nutmegs. The dose is one drachm. The oil of lavender may be given in doses of one to five drops, as an aromatic stomachic and stimulant.

Mentha Piperita-Peppermint.

Mentha piperita and mentha viridis or spearmint are European plants, now cultivated in the United States. The leaves and tops of these plants are aromatic. They have a pungent taste, followed by a sensation of coolness in the mouth. They both contain a volatile oil and bitter extractive, upon which their virtue depends.

Effects.—From one to five drops of the oil of either of the above plants may be given in sweetened water as a mild stomachic to allay nausea or cramp, etc. The spirits or essence, made by dissolving one ounce of the oil in fifteen ounces of alcohol, may be given in doses of from twenty to forty drops every hour or two.

Rosmarinus Officinalis-Rosemary.

Rosemary, another European plant, much cultivated in gardens in this country, is also used as an aromatic and diaphoretic. The oil is a stimulating application in rheumatism.

Hedeoma Pulegioides-Pennyroyal.

Hedeoma pulegioides, or pennyroyal, is an annual plant, indigenous to the United States, growing about lanes and fences to the height of six to twelve inches. The leaves and tops are used. They contain a light yellow oil, similar to the mint oils, but more powerful.

Effects.—Pennyroyal is aromatic and diaphoretic. The oil of pennyroyal and of monarda punctata or horse-mint, are used in stimulating liniments.

Origanum Vulgare-Marjoram.

The essential oil of origanum is a valuable rubefacient; not much used as an aromatic.

Salvia Officinalis-Sage.

Sage is a European plant, now much cultivated in gardens in this country, and used as a condiment; it possesses aromatic and diaphoretic properties. In the Trans-Rocky Mountain districts, sage grows in the greatest profusion.

Thymus Vulgaris—Thyme.

Thyme yields an essential oil, much like that of origanum, and is used as a rubefacient.

Fæniculum Vulgare-Fennel.

Fennel seeds yield an oil which is a mild and pleasant aromatic, and is often used for colic in little children. Combined with other articles, as assafœtida, it may be used with good success. Dose, five to fifteen drops, on sugar.

Carum Carui-Caraway.

The seeds of the carum carui, another European plant cultivated in American gardens, have a mild aromatic effect. Caraway also yields an oil that is aromatic, and may be given in doses of six to eight drops.

Anisum-Anise.

The seed of the pimpinella anisum, a plant from Egypt, but now cultivated in this and other countries, yields an oil. This oil, in doses of five or ten drops, is a mild aromatic for children.

Coriandrum Sativum-Coriander.

The seed of the coriandrum sativum is also aromatic and stomachic, and is used in flatulent colic.

Vanilla Aromatica-Vanilla.

Vanilla aromatica (natural order Orchidaceæ), a climbing plant of Cuba and Mexico, is used as an aromatic. It has a strong aromatic odor, and a warm, aromatic, sweetish taste; the pulp is the portion used. Its flavor is supposed to depend upon a volatile oil. It is used as a flavoring ingredient, and is a mild stimulant and aromatic. It gives a flavor to medicines, and at the same time acts as an aromatic. It is not as positive in its action as dioscorin. Many articles of this class are feeble.

CHAPTER XXI.

Emmenagogues.

EMMENAGOGUES (derived from Greek words emmenia, the menses, and ago, to lead or carry away) are medicines which arouse the uterus to that natural function. This monthly flow is often suppressed from various causes; hence it requires very opposite classes of remedies to restore it. For instance, if amenorrhœa depends upon anæmia, some preparation of iron is required in the restoration of this function; but if it occurs in connection with plethora, evacuants or sedatives are demanded.

Perhaps remedies act less specifically upon the uterus to restore this function than is desired, because the discharge from that organ is not one of the excretions through which medicines pass out of the system; yet there are agents, that from their specific tendency to the uterus, aid in restoring the catemenial discharge. There are certain articles that excite the pelvic circulation and stimulate the uterus, and hence have a tendency to increase the menstrual discharge, such as the drastic cathartics, aloes, black hellebore, etc.; some of the stimulating diuretics, as cantharides; some of the blennorrhetics, as senega; some of the stimulating diaphoretics. as guaiacum, which acts very promptly, and in many cases directly.

Sabina-Savine.

Savine is the tops of juniperus sabina (natural order Pinaceæ), a small shrubby evergreen, growing in the southern part of Europe. It resembles the tops of the common red cedar of this country, and the common cedar is often substituted for it by druggists. The virtues of savine depend upon the oil it contains.

Effects and Uses.—Savine is used by Allopathic physicians as one of the most active emmenagogues. Prof. Biddle says: "It is considered one of the best medicines that can'be used to stimulate the action of the uterine vessels." Pareira pronounces it "the best and most powerful emmenagogue of the materia medica." Topically, it is used to keep up the discharge from blisters, and to destroy warts.

The dose, in powder, is from five to ten grains; that of the fluid extract or essential tincture is five to ten drops. The oil of savine is the most reliable preparation, as the tops soon lose their value; consequently the tincture then made of it is worthless. The dose of the oil is from five to eight drops. It will produce abortion, consequently it should never be given in doubtful cases, as it would prove injurious.

Macrotis Racemosa, Cimicifuga Racemosa—Macrotis, Rattle Weed, Black Cohosh.

This plant, described elsewhere, has, besides its antirheumatic, expectorant and nervine properties, a specific tendency to the uterus. It is used in amenorrhoea, dysmenorrhoea, and leucorrhoea. These effects are doubtless produced through the nervous system, by relieving irritation and irregular innervation, and by strengthening normal activity of function. Associated with pulsatilla, it acts very positively in many cases of amenorrhoea and dysmenorrhoea. For the latter it should be given a few days prior to the expected periodical flow. For rheumatism of the uterus (and many cases of dysmenorrhoea are only cases of rheumatism of the uterus) it is a very positive remedy.

In pregnancy it relieves false pains and many unpleasant nervous sensations. In all cases of uterine disease not attended by inflammation, where there are heavy, tensive, aching pains, macrotis is the remedy. It is the remedy for myalgia and all muscular soreness. I make use of this article in the treatment of menstrual irregularities. I use the essential or saturated

tincture, prepared from the freshly dried root, crushed; made by adding eight ounces to one pint of alcohol (96°). Dose, from five to twenty drops, (ordinarily about ten) every three or four hours.

Macrotin, or Cimicifugin.—Macrotin is the active principle of the macrotis racemosa, or cimicifuga racemosa. It seems to be endowed with a diversity of properties. It exerts a specific influence over exanthematous fevers, determining the eruption to the cutaneous surface; consequently it is possessed of metastatic power, and is an important remedy in scarlatina, small-pox and measles. It is a well-known fact, that in the eruptive fevers there is a specific poison that, per se, first manifests its deleterious influence upon the mucous surfaces, and by the vis a tergo is thrown to the skin; in some cases, however, this inherent preservative power of the system is too much enfeebled to transfer the eruption to the cutaneous surface; in such cases macrotin will be the remedy indicated. In scarlatina, rubeola, lichens, small-pox and some other affections of a kindred type, the poison exerts its deleterious effects upon the mucous surface, and if we fail to transfer it to the skin, and maintain it there, it will often prove fatal in its final results. Macrotin is the remedy to accomplish the desired transfer.

Macrotin seems to exert a marked influence over the nervous system, and is an important remedy in epilepsy, hysteria and other spasmodic diseases. It also exerts a curative effect over diseased fibrous tissues, and hence, combined with colchicum, is a valuable remedy in chronic rheumatism.

Macrotin has quite a controlling influence over the genitoreproductive organs. As an emmenagogue, combined with caulophyllin, senecin and guaiac, it acts promptly and certainly. As a parturient, it is equal, if not superior, to ergot. I have used it, combined with caulophyllin, in cases where ergot had failed, and found it to act promptly. It imparts tone to the muscles of the uterus, and hence, in cases of tardy labor, from exhaustion, this becomes a very appropriate remedy. As an ecbolic it is not so dangerous as ergot, but produces contractions of the uterus more like those of natural labor. It does not, like ergot, by a peculiar zymotic influence, endanger the life of the fœtus.

In rheumatism it may be combined with colchicum and phytolaccin, and this combination I have found one of the most prompt and unfailing that I have ever tried, especially in subacute and chronic cases; it is also very prompt in acute rheumatism, after the active inflammation has been reduced by antiphlogistics. The usual dose is from half a grain to one grain, as an antispasmodic and antirheumatic, but as a parturient, from one to three grains, repeated every hour until it acts. I use the tincture of the fresh root in rheumatism.

Anemone Nemorosa-Pulsatilla.

Pulsatilla exerts a favorable influence over the brain and nervous system, and is a valuable remedy in spermatorrhæa. It is also a remedy for nervousness, when it does not depend upon irritation or determination of blood to the brain. But pulsatilla exerts a very positive influence upon both the male and female reproductive organs. It is one of our most reliable emmenagogues when the suppression is not attended by irritation, but is the result of atony or a shock of the nervous system. It lessens sexual desire in either sex. It does not lessen sexual power, but strengthens it by relieving morbid excitability.

It cures certain brain symptoms not readily removed by any other remedy. In those cases of disease where the patient is nervous, restless, with morbid excitability of the mind, fore-bodings of impending evil and dread of death, pulsatilla will be the remedy. It readily relieves such morbid hallucinations of the mind by its quieting influence upon the cerebrum. The German tincture is reliable, and may be given in doses of three to five drops, every three or four hours; ordinarily, two drachms may be added to four ounces of water, and it may then be

given in teaspoonful doses; every three to four hours is sufficient: The essential tincture is made in the usual manner.

Anemonin.—Anemonin is a concentrated principle of the anemone or pulsatilla. This medicine having been recently introduced, has not been very extensively used by the regular profession, and is not thought to be as active as the tincture. The inactivity, however, may be owing to the mode of manufacturing it. When pure it is an acro-narcotic, and is used in quite a number of pathological conditions of the system. It is very irritating, however, in over-doses, and should, therefore, be prescribed with great care. One-eighth of a grain produces great disturbance of the system. It is said by some writers that the Indians use the crude article in snake-bites with success. It is said also to be of much value in amaurosis and other similar nervous affections of the eye and ear. Some writers recommend it in skin diseases as an external application in the form of an ointment.

I have not used it myself, and therefore cannot speak positively of its merits. Its activity would seem to indicate that it might become an important therapeutic agent, and worthy of a more extended trial. Homeopathic physicians regard it as a leading medicine, but their recommendation is of the tincture alone. The dose of anemonin is from one-tenth to one-sixteenth of a grain, repeated as necessity may require; but should not be too often, as its effects are cumulative. I use the tincture, which is a reliable remedy in nervousness.

Actæa Alba-White Cohosh.

Actae alba has not been well tested as yet, but it is undoubtedly possessed of active properties. Dr. W. Fulton, of Bloomington, Illinois, writes to Prof. John M. Scudder, that it is a specific in controlling after-pains. He says: "There is probably no remedy known that equals it." He used a tea of it freely, but the saturated tincture, in doses of twenty to thirty

¹ Scudder's "Specific Medicines and Specific Medication," page 65.

drops, repeated as often as required, would be preferable to a tea; or the fluid extract, in doses of ten to fifteen drops, every two or three hours, would be more proper as a test.

It doubtless has an affinity for the reproductive organs of females, and that specific tendency at once suggests it as an appropriate remedy in many morbid conditions of the uterus and its appendages, as in neuralgia of the uterus, and painful menstruation; also in cases of leucorrhœa from congestion of the uterus. It will probably be found a valuable remedy in many morbid conditions of the female organs. It may also influence the reproductive organs of the male in such a way as to render it valuable in the treatment of spermatorrhœa and other diseases of the male organs. The essential or saturated tincture may be made by adding eight ounces of the root to one pint of alcohol (96°). Dose, twenty to thirty drops.

Lilium Tigrinum-Tiger Lily.

The pathological keynote of the action of lilium tigrinum is, its direct effect upon the generative organs. And by its sympathetic pathogenesis, it affects nearly the entire organic structure, and also the mental sphere. It has a direct affinity for the ovaries and uterus of the female. It is applicable in cases of ovarian congestion, with scanty flow of the menses. It is also applicable for acute or chronic ovaritis. It gives relief, when alternated with viburnum or xanthoxylum, in cases of dysmenorrhæa. It is valuable in acrid leucorrhæa, causing a rash on the parts, or even vaginitis in some cases. It is a remedy for vaginitis, or endometritis. The dose is from one to five drops. This article needs further investigation.

Guaiaci Resina—Guaiac.

The ammoniated tincture of gum guaiac has proven in my hands an active emmenagogue, especially where the suppression has been caused by wet feet, or sudden exposure to cold or damp air. In dysmenorrhea from cold, the above tincture, in doses of one drachm every four hours, has seldom failed. It

may be given in a tea of polygonum punctatum (the common smart-weed). which is also a mild emmenagogue; or in a tea of pennyroyal, which is also an emmenagogue.

The failures with guaiac have been from imperfectly prepared tinctures. The ammoniated tincture should be prepared as follows: Gum guaiac, pulverized, six ounces, to one pint of aromatic spirits of ammonia; steep ten days, then filter. The dose would be from half a drachm to one drachm, every three hours, in simple syrup. The finely powdered gum may also be given in pills, in doses of ten to thirty grains, every three hours; or five grains every hour. I have frequently combined it with macrotis, equal parts of the tinctures, and give it in from thirty to sixty drop-doses every three hours.

Polygala Senega-Senega.

I have often succeeded in bringing on the menstrual discharge, when suddenly suppressed, by means of a strong infusion of senega, in doses of one ounce every half hour, until it nauseates.

Betain.

Betain is the active medical principle of the beet. The betain has a tendency to, or a specific affinity for the uterus. From the trials with it, which as yet have not been very extensive, it seems to produce a hyperæmic condition of the uterus; and it is said by those who have used it most, that it will so determine the circulation to that organ as to bring on menstruation in the most obstinate cases of amenorrhæa.

I have not used it myself, and therefore cannot speak of its virtues from practical experience; but from the many favorable reports of it, I am inclined to the opinion that it is yet destined to have more attention than it has yet received. It is said to act very mildly but quite efficiently, and is one of those agents which may positively be relied upon in all cases of obstruction of the menstrual function. It may be combined with ergot,

polygonum, macrotin, caulophyllin, senecin, and various other remedies.

The fluid extract is a convenient article, and so is the essential tincture, given in one to three drachm doses, three or four times a day; and I think this will be found preferable to the betain. I might say the same of many other extracts, which are convenient to carry, but are not full representatives of the medicines from which they are manufactured. The dose of the betain is from three to five grains, three or four times a day. When triturated, one grain to ten of lactin, the dose will be from six to ten grains, three times a day.

Helleborus Niger-Black Hellebore, Christmas Rose.

The roots are black, from which fact the plant takes its name; they are rough, horizontal, with numerous fleshy fibers, about the size of a quill. The leaves are large, radical, and on long petioles, variously divided into leaflets which are coriaceous, shining, and serrated at their upper extremity. The flowers are on scapes, having bracts near the flowers. calvx is petaloid, and consists of five large, concave sepals, at first of a white color, then becoming of a rose-red, and finally changing to a green color. The petals are tubular and twolipped, of a greenish-yellow color. The stamens are very numerous, and support yellow anthers. The ovaries are from six to eight in number, surmounted by a somewhat curved pistil. The capsules contain many black, shining seeds. It is a native of mountain woods in many parts of Europe, and is cultivated in gardens as an ornamental plant. In France and England, in mild winters it flowers, from which fact it is called the Christmas rose.

The roots are the parts that are used in medicine; they are black, and when fresh they have a disagreeable odor, and a pungent, acrid and nauseous taste. The fresh root, chewed and retained in the mouth some time, benumbs the tongue, and produces a sort of paralytic stupor, as if it had been burned

with some hot fluid. This acrimony is lost, or at least very much diminished, in drying. It is thought that its cathartic powers depend upon a resinoid material in the roots, as alcohol completely extracts its virtues and retains them.

Medical Properties.—Black hellebore has been used in such large doses as to produce its toxic effects, and consequently it is not fully appreciated. In medical doses, say from one to five drops of the fluid extract, or from five to ten drops of the saturated tincture, it has a specific action upon the reproductive organs of females and, in a less degree, upon those of the male. In sterility of females, from atony of the organs of reproduction, it is a prompt remedy, often succeeding in the removal of the sterility. In impotency in the male, from atony or from excess, it may be used with great advantage. It increases the virility, and restores the reproductive organs to their wonted vigor.

Thus it is plain that it acts as a stimulant and tonic to these organs. This it accomplishes through the spinal and sympathetic nervous systems. It doubtless would be quite beneficial in many cases of spermatorrhoea from exhausted nervous power. It was formerly used in large doses, as an emmenagogue, and often resulted dangerously, and consequently it has now been abandoned as an emmenagogue, though in small doses it will often prove effective. The dose of the fluid extract is about five drops. The dose of the essential tincture is from five to ten drops. I class it with the emmenagogues, as it is not much used otherwise.

Achillea Millefolium-Yarrow.

Yarrow is found in both Europe and America, growing in pastures, meadows and along roadsides, flowering from May to October. It possesses a faint, pleasant, fragrant, and rather sharp odor, and a rough, astringent taste. It contains tannin or achilleic acid, an essential oil and a bitter extractive. Alcohol is its proper menstruum.

Medical Properties.—This plant at one time was much used, but has fallen into disuse, as many others have done. It is, doubtless, efficacious in some passive hæmorrhages, as those from the lungs, stomach and bowels. In bleeding piles (hæmorrhoids), it is a mild but tolerably certain remedy. It also has emmenagogue powers, and may be used in amenorrhœa in young girls of lax and depraved health. Its gently stimulating effects are well calculated to arouse the dormant powers of a sluggish system into action. It has a very good effect upon the mucous surface of the uterus, when applied locally, by injection, in cases of leucorrhœa.

It has considerable antiperiodic powers, and the common people use it frequently in chills. The extract, achilleine, has frequently been used for quinine in the south of Europe. It is frequently given in the form of infusion, in doses of two or three ounces every two or three hours; but a fluid extract or saturated tincture is preferable, as alcohol dissolves all its medical constituents and water does not. The dose of the saturated tincture is half a drachm to one drachm; the dose of the fluid extract, twenty to thirty drops. It is frequently applied in the form of a poultice to wounds and contusions, and seems to have a very good effect. For this purpose the leaves may be bruised and applied to the parts affected.

Senecio Aureus-Life Root.

Senecio aureus seems to act on the female generative organs in a very peculiar way. It lessens hæmorrhages of the uterus when they are abnormal, from congestion of that organ, and in atony of the uterus, it seems to increase its functional action, hence it is called the "Female Regulator." Dose, from thirty to sixty minims, three times a day.

Senecin.

Senecin is the active principle of the senecio gracilis. This article seems to have a specific affinity for the female reproductive organs, as the uterus, ovaries and vagina. It acts as a

tonic to these organs, and produces very favorable pathological changes in cases of debility of that part of the female system. It is especially suited to defective action of the uterus; in fact, it seems to have the power to so modify its action, and so change its pathological condition that it increases its activity in debility, and restrains it when excessive. This it does by its tonic power upon the uterus.

In those strumous habits, where molecular life force is deficient, and the histogenetic power is depraved or feeble, senecin may be combined with eupurpurin, hydrastin, quinine, and the syrup of the phosphites. This combination will give new vigor to the life forces, and at the same time, correct the vitiated condition of the uterus.

For the above purpose, the senecin may be combined as follows: Senecin, one grain; quinine, one grain; phosphite of iron, two grains; simple syrup, q. s. Mix, and give three times a day. In amenorrhæa and dysmenorrhæa, two grains of senecin may be added to one or two drachms of fluid extract of polygonum, and given three times a day. The usual dose is one or two grains, as often as required.

CHAPTER XXII.

Parturients.

Ergota—Ergot.

A T the head of the list of parturients stands ergot, or secale cornutum. This has the direct effect of inciting the uterus to increased action, and will stimulate such action in the non-impregnated uterus. This has been denied by some writers, but I have tested it time and again by giving it for uterine hæmorrhage in the non-impregnated state. If the uterus is tardy in action, the os uteri dilated and soft, and the vagina and the os externum soft and dilatable, and the presentation of the fœtus normal, then ergot may be given with safety.

It may be given, also, in severe hæmorrhage before delivery, or for retained placenta; to expel clots; to remove hydatids, polypi, etc. I usually resort to it to restrain uterine hæmorrhage, either in the puerperal or non-puerperal state, as it always lessens the caliber of the bleeding vessels, and consequently, lessens the flooding. I have found it very prompt to check menorrhagia, and other hæmorrhages. I use the saturated tincture of the fresh berries, made by adding six ounces to one pint of alcohol (60°). Dose from thirty to sixty drops.

Ustilago Maydis-Corn Smut.

Ustilago maydis belongs to the natural order Fungi. It grows upon the stems in place of corn. It occurs in globular, irregular masses, sometimes five or six inches in diameter, and consists of a blackish membrane, inclosing many minute globular spores, their surfaces being covered with echinulate warts. It has an unpleasant odor and taste, and contains a fixed oil,

resin, pectin, gluten, sugar, and an acid, kindred to the sclerotinic acid from ergot, and also a volatile principle called secaline, which is supposed to be identical with trimethylamine. It also contains propylamine. Its composition is very similar to the ergot of rye, and is similar in action to that substance.

Physiological Action.—Ustilago resembles ergot and nux vomica combined. It is a spinal excitant, and exalts reflex action, as well as sensibility. In large doses, it produces tonic convulsions on slight irritation of the skin. It stimulates the pneumogastric nerve, and thereby slows the heart. It dilates the pupil, causes muscular paresis, and finally death by tetanus of the respiratory muscles, or by mere exhaustion. It produces, in animals, gastro-intestinal irritation, and the post-mortem examination reveals patches of inflammatory redness in the intestines; and the reflexed irritation upon the brain reveals meningitis after death in cattle. It will produce either chronic or acute ergotism, as does the ergot of rye. In the chronic form, there is a peculiar dyscrasia in the subjects.

Therapeutic Action.—Inasmuch as ustilago contains a large percentage of ergotin, it, of course, must possess much of the oxytoxic properties of ergot. Ustilago is not identical with ergot, for it contains some very active principles which are not found in ergot. Hence, we cannot substitute one for the other in all cases. Ustilago is not as powerful in its action upon the uterus as secale. But in chronic passive uterine and other hæmorrhages, ustilago is claimed to be superior to ergot. It acts upon the spinal cord in a similar manner to ergot, but not so powerfully. I have already stated its effects upon the brain of animals poisoned with it. It has a curative effect upon some moist skin diseases.

I have used it in many cases of uterine hæmorrhage, both acute and passive, with the most perfect success. I have found it efficient in cases of menorrhagia, metrorrhagia, and post partum hæmorrhage of females. It is valuable in cases of ovaritis, ovaralgia, amenorrhæa, dysmenorrhæa, and all irregu-

larities of the menses. It is curative of uterine fibroids, in their primary stage. It will also expel polypoid growths. It is applicable to profuse, premature, or prolonged menses, from congestion, paresis, or atony of the uterus, and should be given in small doses, say five to six drops, every two or three hours. In one or two drop doses it is very active where miscarriage is threatened, but it is inferior to caulophyllin in such cases.

Caulophyllum Thalictroides—Papoose Root, Blue Cohosh, Squaw Root.

Caulophyllum exerts a direct effect upon the parturient uterus, through the nervous system, stimulating the normal action of the uterine muscular tissues. In small doses it relieves false pains, and before the full term of gestation is completed, it gives tone to the uterus, and thereby prevents delays. In labor, it co-ordinates muscular contractions and increases the power of the uterus. It does not produce as violent and continued contractions as ergot, but energizes the uterus when it is in a state of atony, and this it does through the sympathetic nervous system; especially does it influence the hypogastric plexus.

It is not only a parturient, but its influence over the sympathetic system renders it a valuable remedy in certain diseases of the female reproductive organs. I have often used it in cases of endometritis in connection with other articles that have an affinity for the uterus, and with good effect. A combination of this and other articles, under the name of compound tineture of partridge-berry, is much used to prevent barrenness, and to render tedious labors less protracted, and it is a good preparation (See King's Dispensatory). The tineture of caulophyllum is made by adding eight ounces to one pint of alcolol (76°). Dose, ten to sixty drops.

Caulophyllin.—Caulophyllin is a concentrated extract of caulophyllum thalictroides. I have used this agent for many years, and have found it to be one of the most active, yet mild, emmenagogues that we possess. Its specific tendency is to the female reproductive organs, especially to the mucous membrane of the vagina and uterus; it has also a secondary tendency to the mucous coat of the urethra, and hence it may be prescribed in subacute and chronic inflammations of these mucous membranes. It is adapted to all diseases of the vagina that are dependent upon an inflammatory action.

Inflammation of the mucous lining of the vagina gives rise to an exudation, which is simply an escape of the liquor sanguinis, which exudation is converted into pus corpuscles; this constitutes the discharge known as leucorrhœa. This is quite a common disease among the child-bearing females of the South, and sometimes it occurs in the unmarried of a bucophlegmatic habit, or as a result of self-abuse. For this pathological condition caulophyllin and hamamelin are remedies of reliable power, as they both have a peculiar affinity for the mucous membranes of the genito-urinary apparatus. These remedies are stimulants to enfeebled mucous membranes, and consequently they counteract that hyperæmic or inflammatory condition upon which the leucorrhœa depends.

Some writers seem to think that caulophyllin has considerable influence over the mucous membranes generally, and prescribe it in urethritis from masturbation. It has also been prescribed, combined with sanguinarin, in bronchitis, but I think that if it exerts any influence over the mucous coat of the bronchial tubes, it is but feeble. It is highly recommended, combined with lupulin and hydrastin, in spermatorrhæa, and doubtless this combination would be efficient.

As a parturient I have found caulophyllin one of our most reliable agents; it does not act as quickly as ergot, but much more mildly, and more like natural labor. I usually combine it with macrotin, one part of macrotin to two parts of caulophyllin, and give two or three grains, every hour or two, according to its action. This combination I have used in some extreme cases of inertia of the uterus, and found it to act finely, so much so that I have depended upon its action where I had failed with ergot. I have had cases where abortion had happened, and the uterus had become quieted and remained so for hours, in which the above combination succeeded in bringing on contraction, so that I was enabled to remove the placenta.

In many cases that I have attended, the excito-motor system has become so exhausted that ergot could not produce its effects, and in such cases caulophyllin, combined with macrotin or gossypiin, has acted forcibly. Caulophyllin seems to give tone to the exhausted motor system of nerves, especially of the uterus. It is a mild nervine, and may be used in chorea, epilepsy, hysteria and spasms. The dose is from one to three grains, every one, two or three hours.

Viscum Album-Mistletoe.

This species is found in Europe, and belongs to the family of Loranthaceæ. It contains a resin, an odorous principle, tannin, a fixed oil, mucilage, sugar, and viscin, which is a tenacious substance sometimes called bird lime. The tincture is used; this may be made of the fresh bark, eight ounces, to eight ounces of alcohol; dose from one to fifteen drops. It has not been well tested as yet, but has been used in female irregularities, and as an ecbolic or oxytoxic.

The American species is thought to be identical in property. It is the V. flavescens, which grows on oak and elm trees; one species grows on other trees.

Physiological Action.—The berries of the mistletoe produce emeto-catharsis, with tenesmus, bloody stools, convulsions, and, in young children, death.

Therapeutic Action.—The leaves, twigs, and bark have been used in epilepsy, hysteria, chorea, asthma, and other nervous diseases. The American species is reported to possess properties similar to those of digitalis, and oxytoxic powers. It has, consequently, been recommended in uterine hæmorrhages, amenorrhæa, and as an abortifacient. It is also favor-

ably spoken of in cardiac diseases, dropsy, sciatica, neuralgia, and cephalalgia. It has an important sphere of action, and should be more thoroughly investigated. Prof. E. M. Hale reports many cases of epilepsy cured by it. It is especially indicated where there is a flow of blood to the brain, and frequent headache and flushing of the face. It has direct effect in all hæmorrhages from the uterus, when given in doses of five to ten drops, every two or three hours.

Gossypiium Herbaceum-Cotton.

This well-known plant needs no description. It is cultivated on almost every Southern farm in the United States, and is well known to the profession. The recent bark of the root is used.

Effects.—A decoction of the bark of the fresh root (made by boiling eight ounces in a quart of water down to a pint), given in doses of two to three ounces every thirty minutes, produces prompt uterine contractions. I have used the above preparation, and also an aqueous extract, with prompt success where I had failed with ergot. The dose of the fluid extract is from one to two drachms every half-hour, or oftener if required. It does not appear to be attended with danger from over-action, but produces uniform contractions, which very gradually increase under its use.

I have twice tested it in cases of labor where the fœtus was dead. In both cases I had failed with ergot and other articles, but succeeded with a strong infusion of the fresh bark of cotton root. Some physicians praise it very highly as an emmenagogue, but, as such, I cannot speak of it from personal knowledge, but it may be tried with a prospect of doing good. The fluid extract, properly made, is a good preparation. Gossypiin is spoken of as an eligible preparation.

Gossypiin.—Gossypiin is the emmenagogue and parturient principle of the gossypiium herbaceum. This principle in the cotton root was first found out from the criminal use of it by

the slave women, who employed it to produce abortion. It is now a well attested fact that the cotton root or its extract does have a specific tendency to act on the uterus, not only upon its muscles, but also upon its secretory function. I have used the saturated infusion and fluid extract in many cases of tardy labor from inertia of the uterine muscles, and have succeeded in expediting parturition, after having failed with ergot.

As a parturient the gossypiin is mild and certain in its action, and like caulophyllin, does not produce that well-known rapid, convulsive action of ergot, but gently stimulates the uterus to a normal action. In dysmenorrhæa, combined with iron by hydrogen, gossypiin is one of our most efficient therapeutic agents. In cases of obstruction of the menses from cold or from debility of the reproductive system, gossypiin, combined with betain and macrotin, will generally succeed in restoring the catamenial discharge. If this article is not manufactured in accordance with the principles of pharmaceutical accuracy, it will not represent the virtues of the crude plant. The dose is from three to five grains, repeated every half-hour as a parturient, or every four hours when its emmenagogue effects are desired.

CHAPTER XXIII.

Irritants.

I. RUBEFACIENTS.

RUBEFACIENTS are used merely to produce redness of the skin, and thus act as light counter-irritants. They are also used to relieve pain and spasm. Sometimes they are employed to relieve coma, syncope and asphyxia, and to stimulate the general system by their shock upon the nervous system. They are only applicable where a transient effect is desired.

They remove congestion or inflammation by the stimulation of the often torpid capillary circulation of a congested part, thereby restoring its tone and elasticity. They are not of much benefit in the grave forms of inflammation, but may do good in the forming stages or in the milder forms. They are valuable in asphyxia resulting from poisons or from drowning. Many of the articles used as rubefacients are dangerous in careless or ignorant hands, for if kept on too long, they will produce vesication and even gangrene. Mustard is particularly dangerous, as the blisters produced by the long-continued application of this article are very difficult to heal. They should be used cautiously.

Sinapis Nigra—Black Mustard. Sinapis Alba—White Mustard.

Sinapis nigra and S. alba (natural order Cruciferæ, Siliquosæ), are small annual plants, originally from Europe, but now cultivated in gardens in this country. The powdered seeds

of both varieties is called flour of mustard, and is kept in all the drug stores in tin boxes, excluded from the light.

Effects and Uses.—The unground mustard seed, taken in small quantities, is said to stimulate digestion. It is much used when ground, as a condiment, but in large doses it is emetic, and in excessive doses it produces gastro-enteric inflammation.

Applied to the skin, mustard is a powerful rubefacient, very soon producing redness and a burning sensation like fire. It should never be left on longer than from twenty to twenty-five minutes, for after that time it is liable to produce dangerous vesication, which is very apt to be followed by ulceration, and often sphacelus and gangrene. If moistened with molasses or syrup, instead of water, it is not so apt to vesicate. Mustard plasters may be applied any time a quick but transient effect is desired, as for headache, pleurodynia, neuralgia, and in the forming stages of pneumonia and pleuritis. Applied to the nape of the neck, they often relieve nervous headache.

Capsicum—Cayenne Pepper.

Capsicum, already noticed as an aromatic stimulant, is a very active rubefacient. It is much used in the form of a poultice by non-professionals. As a liniment for rheumatism, a few drops of the oil in a little sweet oil, is much used to allay pain of the joints. The tincture, made by adding four ounces to one pint of alcohol (96°), is a good application to painful parts, or diluted, four or five parts with water, it is a good wash for tonsillitis.

The compound tincture, under the name of "hot drops," or "No. 6," is much used by the people, both externally and internally. It may be made by adding capsicum, one ounce; powdered gum myrrh, one pound, to one gallon of alcohol (96°); steep ten days; then filter. Dose, one drachm, every three hours. This preparation has been put up and sold under the

names of "pain-killer," "pain-alleviator," and many other appellations.

Capsicum makes quite a stimulating application to parts that are in a state of torpor or atony, but should not be used, as it often is, where there is active inflammation. As a counter-irritant it may often be used where there is a torpid capillary circulation. In congestive fever, the whole surface may be washed in a strong tea of cayenne pepper, to arouse the torpid capillary vessels. As a local application, the oil may be diluted with sweet oil or alcohol, one part of the oil to six or eight parts of alcohol.

Oleum Terebinthinæ-Oil of Turpentine.

The oil of turpentine, already noticed under another head, is a very active and certain rubefacient. It sometimes vesicates, if continued too long, or used on persons of thin, tender skin; but if diluted with cream, lard or sweet oil it will not vesicate. It is often used as a stimulating liniment, mixed with camphor and olive oil, in paralytic and rheumatic affections, and very frequently alleviates the pain.

Linimentum Ammoniæ-Ammonia Liniment.

This is the well-known "volatile liniment," which is made by mixing one ounce of water of ammonia with two ounces of olive oil. If desired to be very active, one-fourth of an ounce of gum camphor may be added. This last makes a very efficient application in soreness of the throat, and to the chest in soreness from sudden cold. I use it frequently for sprains and bruises, with about two parts of arnica to one of the liniment, and find this combination well suited to such conditions of the joints following sprains. I do not use the liniment in the inflammatory stage of the sprain, but after first using cold applications and tincture of arnica. When the active inflammation is subdued, then the liniment will be of much service.

Pix Burgundica—Burgundy Pitch.

This is the resinous exudation prepared from abies excelsa, or Norway spruce (natural order Pinaceæ), a tall evergreen tree, growing in Europe and Northern Asia. It is also the product of the silver fir. It contains two resins and a small proportion of volatile oil. A spurious article is prepared by melting together pitch, resin, and turpentine, and then agitating the mixture with water; but it is inferior to the burgundy pitch.

Effects and Uses.—Burgundy pitch has long been used as a gentle rubefacient, producing slight inflammation and serous effusion, without detaching the cuticle. It sometimes produces vesicular eruption, which occasionally progresses to ulceration. It is prescribed in chronic bronchial affections, to the loins in lumbago, etc., and is usually applied in the form of a plaster on soft leather.

Pix Canadensis—Canada Pitch.

Canada pitch is obtained from the hemlock spruce, abies canadensis (natural order Pinaceæ), a tall evergreen tree of Canada and other northern parts of North America. It is a spontaneous exudation from the trees.

Effects and Uses.—Canada pitch has a similar effect to the burgundy pitch. Canada pitch plaster is made by melting together twelve parts of Canada pitch with one part of yellow wax. It is applied on cloth or leather.

II. VESICANTS-EPISPASTICS.

Vesicants are medicines which, when applied to the skin, so inflame it as to cause a free effusion of serum beneath the cuticle. Many rubefacients will blister, if kept in contact with the surface a certain length of time, and conversely, vesicants briefly retained, merely produce rubefaction. This class of remedies is growing out of favor very fast, for the inflammation which they produce is similar to that of erysipelas, and

often results in suppuration, and even sloughing or gangrene. Where there is already inflammation of the dermoid tissue, as in measles and scarlet fever, or in typhus, or in infancy, blisters may prove fatal, and should never be used.

As local stimulants, they have been employed to cure internal inflammations, as those of the lungs and bowels, but in most cases, warm poultices are preferable, and in many more, the irritating plaster (see King's Dispensatory) will do all that is claimed for blisters. In some affections of the eyes and of the head, I have used blisters with good effect, but, as a rule, they may be dispensed with. The preternatural excitement frequently overbalances the good they might otherwise accomplish. They produce very powerful nervous excitement, and shock the system so much that they should not be generally used.

Cantharis—Cantharides.

Cantharis vesicatoria, or lytta vesicatoria, is the Spanish fly, an insect from six to ten lines long, by two or three in breadth, with large cordate head, and an oblong body, partly covered by elytra or wing-cases of a golden-green color. They are found most abundantly in Spain, Italy and the southern part of France, also in most temperate parts of Europe and Western Asia. They are found on certain kinds of trees and shrubs, and are known by their very strong odor, which resembles that of rats and mice. They appear in May and June, and are collected by shaking the trees, and catching the flies on cloths spread under the trees. They are plunged into hot vinegar or exposed to its vapor, and dried in the sun or over stoves. They should be kept dry and excluded from the air. A little camphor or acetic acid preserves them.

Physiological Effects.—Cantharides are an acrid stimulant when taken internally. In small doses they increase the action of the kidneys, and in over-doses produce strangury, priapism, pain, and the discharge of bloody urine. In very large doses

they produce gastro-enteric and genito-urinary inflammation; and if pushed too far, they prove fatal, by producing convulsions, tetanus, delirium, and other violent cerebro-spinal affections. From twenty-five to thirty grains will cause death. After the stomach-pump, the best antidotes are demulcents, opiates and stimulants; oils are injurious.

Medical Uses.—Applied to the skin, cantharides produce inflammation, with free secretion of serum under the cuticle, When thus applied, unless the plasters be well sprinkled with powdered camphor, they are liable to produce strangury, tenesmus and other deleterious effects; hence they should always be thus prepared before being applied to the skin.

A blister may ordinarily be produced in from three to four hours on adults, by applying a plaster of the desired size, covered with the blistering cerate (ceratum cantharides), which is made by mixing twelve ounces of powdered cantharides with seven ounces each of melted wax and melted resin, and ten ounces of lard; stirring until cold. This is the preparation usually employed. If a rubefacient effect only is desired, it may remain in contact with the skin until it begins to redden it; then it should be removed. After a blister is drawn, a wilted cabbage leaf or a commeal poultice, may be applied, and kept moist. If it is desired to dry the blisters up, they may be dressed with sweet cream or olive oil. Fly blisters are going out of use.

Irritating Plaster.

The irritating plaster will accomplish all the remedial, without the evil effects of a fly blister; consequently the best physicians now seldom or never use the latter.

The irritating plaster may be made as follows: Burgundy pitch half an ounce; gum turpentine, one ounce; resin, two ounces. Melt these together, remove from the stove, and add pulverized poke root, pulverized blood-root, pulverized mandrake root, and pulverized Indian furnip, each one ounce; stir

these in until the mass cools. Spread this on cloth or leather of the desired size, and apply wherever active counter-irritation is desired.

This is superior to a blister in acute, and far superior in chronic cases, as it may be continued much longer. When it is continued for a long time it will produce large pustules, and suppuration, if desired; it may then be removed until the suppuration ceases, and then reapplied; thus it may be continued any length of time desired. In chronic cases, it may be used for months if necessary. It produces as active counter-irritation as is needed, but does not injure reaction nor does it produce the other objectionable effects of the fly blister.

Granville's Counter-Irritant.

This preparation is used to produce an immediate vesication. It is prepared by mixing five parts of stronger water of ammonia, two parts of tincture of camphor, and one part of spirits of rosemary; shake well to mix, and wet a flannel cloth in this and apply to the skin, which it will generally blister in from five to ten minutes.

Gondret's Vesicating Ointment.

This ointment is made by melting together two parts of oil of almonds, thirty-two parts of lard, and adding to the mixture seventeen parts of stronger water of ammonia; it will vesicate in ten minutes. Either this or the last named preparation may be used where an immediate blister is desired, which seldom occurs.

III. SUPPURANTS.

Oleum Tiglii-Croton Oil.

Croton oil, diluted with one or two parts of olive oil, or turpentine, and applied to the skin, will produce strong rubefaction, accompanied by a pustular eruption.

This is a very valuable application to the throat and chest in subacute or chronic inflammation of the larynx and bronchial tubes. It is a good application for hoarseness and all cases of congestion of the vocal organs. One or two applications will generally be followed by a copious crop of small pustules and by a sufficient amount of excitement to counter-irritate strongly.

IV. ESCHAROTICS—CAUTERANTS.

Escharotics or cauterants are such chemical agents as have the power to destroy the vitality or structure of the parts to which they are applied. The application of these medicines produces an eschar, which is soon followed by an amount of inflammation and suppuration in the adjacent tissues sufficient to detach the dead portion from the living structure.

Escharotics are employed to destroy warts, condylomata, polypi, fungous granulations, cancerous tumors and other varieties of morbid growths. They are also used to decompose the virus of dead bodies, rabid and venomous animals, and of chancre and malignant pustule, and to kill the adjacent parts so as to prevent their absorption into the general circulation. They are also applied successfully to old indolent ulcers, to produce healthy granulation, etc. They are used in gonorrhœal ophthalmia, to heal indolent sinuses, and are applied to poisoned parts, to carbuncles and to ulcers of various kinds that do not granulate healthily.

Although caustics have been abused by quacks, in the treatment of cancer, to the exclusion of proper constitutional remedies, yet they, if properly selected and managed, are preferable, in many instances, to the knife for the removal of the cancerous mass. But we should not depend on caustics, as these mountebanks do, to cure cancer.

Argenti Nitras-Nitrate of Silver, Lunar Caustic.

Lunar caustic is very frequently applied to poisoned wounds in the dissecting room, and for the destruction of warts, corns and fungous flesh. It does not liquefy on application; hence its action is confined to the parts to which it is applied. It is also used frequently to decompose and prevent the absorption of the syphilitic virus in chancres. It is also employed to change the condition of indolent ulcers, but is inferior to other caustics for this purpose. It is used in sinuses, fistulæ, and to arrest erysipelas and cancrum oris, and in some skin diseases. It is a good application to many low forms of mucous inflammation.

As an injection in chronic vaginitis, from twenty to thirty grains to the ounce of distilled water, will frequently change the morbid condition of the parts and aid in the cure. In some cases of chronic ophthalmia, one or two grains to an ounce of distilled water will be followed by amendment. Nitrate of silver, dissolved in nitric acid, so as to form a paste, will remove warts and corns at one application. It is also a good application to spongy granulations, commonly called "proud flesh," removing them with as little pain and irritation as any escharotic that could be employed. It is also a good application to lupus, in its early stage. It is not the remedy for ulceration of the uterus.

Potassa-Caustic Potassa.

The ordinary potassa of the shops is a hydrate, consisting of one equivalent of water and one of potassium. It is seldom found pure.

Effects and Uses.—Caustic potassa is the most active escharotic in the list, and unlike lunar caustic, it extends its action to a considerable depth beneath the surface to which it is applied. It is used to form issues and open abscesses, and also to destroy the virus of chancre, and of malignant pustule. It may also be applied to the bites of serpents and rabid animals, and to arrest the sloughing of carbuncles. If applied early to carbuncles, it will sometimes avert the inflammation. When it is applied on the skin, it should be covered with a coating of wax, or a bit of adhesive plaster, having a hole in it the size of the spot to be cauterized.

Potassa Cum Calce-Potassa with Lime.

This is potassa with lime, and is made by rubbing up equal parts of potassa and lime. It may be made into a paste with alcohol, which constitutes the Vienna paste, and may then be formed into sticks. The addition of lime renders this caustic milder and less deliquescent than the last named, and more easily managed. It is a good application to chancre, fungous tumors, and to any parts where rapid decomposition is desired. As it is active, it must be used with caution.

Soda-Caustic Soda.

Caustic soda may be prepared by the rapid evaporation of a solution of soda until ebullition ceases and the soda melts. When it has congealed, it is broken into fragments, which are very corrosive and very soluble in water and alcohol, and which deliquesce but do not become liquid. It is used for the same purposes as caustic potassa, but is milder. The London paste may be made by rubbing up equal parts of soda and lime. This may be applied to enlarged tonsils with good effect. It is a mild and safe caustic, if managed with skill.

Mild Caustic Potassa.

In John King's American Dispensatory we have described the mild caustic potassa, which is often used as an application to granulated eyelids, to indolent granulations in old ulcers, and to cauterize the os uteri when ulcerated. It does not destroy the parts to a very great depth, and is only applicable where the design is to produce a mild caustic effect and thereby to modify the nutrition of a part that does not heal readily. It is applicable where other articles would be too active; hence it has its place, like every other remedy in the materia medica. It is a good application to epithelial ulcers of the uterus.

Zinci Chloridum—Chloride of Zinc.

The chloride of zinc is a safe and very powerful escharotic, and while it decomposes animal tissues with great certainty and rapidity, at the same time it influences the adjacent tissue more than perhaps any of the above named articles of this class of remedies. When it has decomposed a morbid growth, and the dead parts are separated from the living tissue beneath, the eschar leaves a healthy granulating surface; hence it is one of our best applications to indolent ulcers and sinuses.

It is likewise a good application to lupus, while in a malignant state, and frequently cures it. This has led the so-called "cancer doctors" to the belief that it cures, but this it does not do of itself. In may enucleate them, but they return; this I have seen time and again.

It often does, however, like the knife, flatter the patient and his physician with the vain hope that the disease has been cured, but sooner or later it reappears with more than its former malignancy. It is a safe and reliable caustic, where the morbid growth to be destroyed is not too large. It is more manageable than caustic potassa, and less painful. I usually make a paste of it, by combining it with equal parts of flour, and then putting it on a bit of soft cloth or sheepskin.

Acidum Chromicum—Chromic Acid.

Chromic acid (CrO₃) is obtained by the reaction of sulphuric acid upon a solution of bichromate of potassium; it should be called *chromic anhydride*. It occurs in the form of anhydrous, deep-red, needle-shaped crystals, of an acid, metallic taste. It soon deliquesces when exposed to the air, and dissolves readily in water, forming an orange-yellow fluid.

Effects and Uses.—Chromic anhydride is a very powerful escharotic, and less painful than many others. It destroys the tissues to which it is applied, by its rapid oxidizing action. It should be used in the form of a paste or solution, of such strength as may be required to destroy the parts desired.

It is a good application to some morbid growths and excrescences, as syphilitic condylomata and large granulations. Although it is less painful than other caustics, yet it must be

used with great caution, for it penetrates deeply into the parts to which it is applied. The solution may be of any desired strength; say one hundred grains to one ounce of water. This solution may be applied by means of a glass rod or small pencil. The paste may be made by mixing the crystals of the acid with Venetian balsam, or balsam of Peru, or balsam of fir, or common soft turpentine, of any desirable proportions. It should be applied on cloth.

Acidum Arseniosum-Arsenious Acid, Arsenic.

This is the common arsenic of the shops. This caustic is occasionally applied in lupus, onychia maligna, cancerous ulcers and to change the action of ill-conditioned sinuses, but its use is attended with so much danger that it is seldom used now by well-read physicians. It is the cancer plaster of the quack "cancer doctors" who pretend to cure this dreadful disease with some newly-discovered remedy, "which destroys the cancer, root and branch." These mountebanks preserve the enucleated tumors that they have removed with arsenic, often at the expense of the lives of their patients, and exhibit them in great numbers in glass jars, to induce others to be victimized.

Arsenic diluted with sulphur, one or two parts of sulphur to one of arsenic, and with flour or starch made into a paste, may be applied to a small surface, without risk of absorption, but if applied to a large surface it will enter the circulation in such quantities as to affect the constitution injuriously, or even fatally in some instances. It is growing out of favor with the better class of physicians, and safer articles of this class are taking its place, to the greater safety of the patients. It may often be applied to lupus, where the ulcer is small, with safety and success.

Liquor Hydrargyri Nitratis — Solution of Nitrate of Mercury.

The solution of the nitrate of mercury (Hg 2 N O_3) is made by dissolving three ounces of mercury in five ounces of nitric

acid, mixed with six ounces of distilled or rain water; and as soon as the reddish vapors cease to arise, it should be evaporated to seven and one-half ounces. Or it may be prepared by dissolving three ounces and one hundred and twenty grains of the red oxide of mercury in a mixture of three ounces and three hundred grains of nitric acid in six drachms of distilled water. It is a dense, nearly colorless fluid, of the specific gravity of 2.165, and of a strongly acid taste.

This makes a very powerful caustic, and when the sulphate or chloride of zinc cannot be procured, it may be applied to gangrene, venereal and malignant ulcers, and, diluted to proper strength, to some skin affections, ringworm, and kindred diseases. It is a good application to warts in its full strength. The chloride of mercury is used in the same way, and is as good in skin diseases, but these are inferior to many other caustics, and are more dangerous.

Potassii Bichromas-Bichromate of Potassium.

The bichromate of potassium is an active caustic, in a saturated solution or powder, to syphilitic and other unhealthy ulcers. In solution it is used by oculists. As a collyrium it should not be very strong, and then used with a pencil carefully.

Acida Mineralia-Mineral Acids.

The mineral acids are very active escharotics; but being fluid, it is difficult to confine them to the part upon which they are designed to act. But they can sometimes be applied to the bottom of sinuses and fistulæ, which are inaccessible to the solid caustics. Nitric acid is the best for such purposes. It is a good application to warts, corns, and nævi; and properly diluted, it may be applied to some skin diseases, as tetter, etc.

Cupri Sulphas—Sulphate of Copper.

The sulphate of copper, also called blue-stone, and blue vitriol, is obtained by roasting the native sulphuret of copper, or by a combination of the oxide of copper with sulphuric acid,

and occurs as a by-product in the refining of silver. It is cupric sulphate ($CuSO_4$, $5H_2O$). It is in prismatic, blue crystals, which are soluble in water.

Medical Uses.—It is used in fungous granulations, and in solution, to arrest slight hæmorrhages and mucous discharges. But it is much more painful than the sulphate of zinc, and therefore is not much used now as a caustic, or as an injection. It does not leave as healthy a surface as the chloride or sulphate of zinc; consequently, it might, with great propriety, be expunged from the list of escharotics.

Auri Chloridum-Terchloride of Gold.

The chloride or terchloride of gold (Au Cl₃, 4H₂O) has recently been introduced into the list of escharotics; and I have found it a very safe and efficient caustic. I have used it in solution, in the form of powder, made into a paste with gum or starch. To lupus, in its recent state, it is one of the best applications that I have tried. To chancres, there is no better application in the list of escharotics. If the "cancer doctors," who use arsenic so freely upon their patients, would lay that article aside and use the chloride of gold properly, they would not lose so many of their patients. It does not destroy the tissues deeply, but for superficial ulcers or chancres, it makes one of our best applications, when properly used.

It may be made into a paste of any desired strength, by uniting it with flour, starch, or gum arabic, and a little water. For ulcers, it may be applied as a wash in a solution of five or ten grains to the ounce of distilled water, and applied with a pencil brush, or on lint. This solution is also a good application to fungous granulations. To enucleate cancer, a strong paste should be used, say ten to twenty grains of chloride of gold to a teaspoonful of flour or starch, made into a paste with water. If it is desirable to take out a large tumor, the quantity of gold may be increased to any strength.

Ferri Sulphas-Sulphate of Iron, Green Vitriol.

The pure sulphate of iron is a mild, but very positive caustic. It is not as active as some others, and hence is not applicable where large tumors are to be enucleated. But for lupus upon the face or hands, this is a good cautery, removing the unsound parts without interfering much with the sound flesh. It may be used also to remove fungous flesh from ulcers, in the absence of other articles of the class.

Where it is desired to make it more active, it may be formed into a paste by dropping a few drops of sulphuric acid upon the fine powder of the sulphate of iron. This paste makes an active escharotic, and may be used when the chloride of gold or zinc is not at hand. A strong solution is a good application to that poisoned condition of the feet of children from exposure to dew or rain (called toe ache), and seldom fails to cure it.

A weaker solution, say five or six grains to the ounce of water and glycerine, is a good application to the skin affected with erysipelas, and should be applied frequently, or a cloth, folded several times, may be wet in it and applied, and kept wet in the solution. For children whose skin is tender, from two to four grains to the ounce will be strong enough. It is also a good wash for the rhus toxicodendron and other poisons.

Salts of Sorrel.

There are certain vegetable extracts made by evaporation of the strong decoctions of the plants that contain them. In this class may be mentioned the extract of oxalis acetosella, or wood sorrel, and the rumex acetosella, or sheep sorrel, which contain oxalic acid, united with potassium, in the form of binoxalate of potassium. It is called the salts of sorrel, and is much used to remove ink stains from clothing, as well as other stains.

To form an escharotic of the sorrels, the leaves and stems should be well bruised in a mortar, the juice then pressed out through a coarse cloth, caught in an old pewter dish or plate, and suffered to evaporate in the air to the consistency of honey. It should then be put up in air-tight jars, and kept for use. This paste may be spread on thin sheepskin or cloth, and applied to an open cancer; if it is not open, a little fluoric acid may be brushed over the skin, by which the cuticle will soon be decomposed, and when removed will leave an open cancer, ready for the application of the above paste, which may be applied every few days until the cancer falls out; or, to make a thick paste, powdered sanguinaria may be added to the extract of sorrel in such proportions as may be required to form a plaster of proper consistence. This is one of the favorite applications of some of the noted "cancer doctors."

Phytolacca Decandra—Poke Root.

The extract of poke root may be prepared as directed for the sorrel. A quicker way is to boil the fresh root, finely bruised in an iron mortar, until the strength is exhausted; then strain off the clear liquid, and very slowly evaporate it, upon a sand bath, to the consistency of honey, adding the chloride of carbon, finely pulverized, to the desired strength. This makes an active escharotic, and was hailed as a great antidote to cancer; but upon trial it proved, like all other vaunted specifics, nothing but a good escharotic, like the chloride of zinc, gold or It is very active, and like the chloride of zinc, it does not spread when made thus into a paste. It may be employed (as some cancer doctors use it) in combination with the extract of yellow dock or white oak bark, made as directed for the above extract of poke root. But none of these escharotics do more than the knife does—that is, simply remove the tumor; and as cancer is a blood-poison, it cannot often be cured by excision or enucleation, as is now fully proven. It is true that there are active alteratives which will remove this deadly poison from the blood, if taken in time. The above escharotics may be used to remove the decomposing mass, and thus prevent reabsorption, but that is all the benefit to be expected from them.

CHAPTER XXIV.

Coloring Agents.

I is sometimes desirable to color some articles of the materia medica, when it can be done without injuring the properties of them. The following are agents that may be used:

Crocus Sativus-Saffron.

Besides the active diaphoretic effects of saffron, it forms a beautiful orange color. It may be used to color many pharmaceutical preparations, as well as to form the color for sample signs, used by druggists in show-windows. It has an aromatic odor.

Santalum Rubrum-Red Saunders.

This is the wood of the pterocarpus santalinus, a large tree of India and Ceylon (natural order Fabaceæ). It contains a resinoid matter called santalin $(C_{16}H_{16}O_3)$. It is employed solely as a coloring material. It imparts a red color to alcohol or to colorless tinctures and is innoxious.

Coccus Cacti—Cochineal.

This is the coccus cacti of Mexico and Central America. The female insect, dried, is the article used, and commonly found in the shops. It appears in the form of roundish or somewhat angular grains; it is of a beautiful color; its coloring principle is carminic acid. It is also used as a medicine. It is an antispasmodic to the bronchial tubes, and used with good effect in whooping-cough. The dose is from one-third of a grain to one grain, according to age.

Sulphate of Indigo.

For coloring fluids for show-windows in drug stores, in addition to the above articles, may be mentioned the sulphate of indigo, dissolved in water, with enough alcohol to prevent it from freezing. It also makes a good blue ink by melting in water, with the addition of a little gum arabic.

Prussian Blue.

Prussiate of iron (Prussian blue) pulverized, one ounce to one quart of soft water, to which is added half an ounce of oxalic acid, and all dissolved together, makes a beautiful blue ink, and also a beautiful blue for show-windows in a drug store; also, it is much better to put in starch than that which is commonly sold for that purpose. A tablespoonful of the above solution may be added to a tub of water of ordinary size, or two tablespoonfuls to a larger tub of water, in which the clothes are immersed.

Carmine.

Another beautiful red coloring material for the show-window in the office or drug store, or for writing ink, is prepared as follows: Take six grains No. 40 carmine, and five grains No. 8 carmine and two grains of gum arabic to the ounce of soft water, to which add one drachm of aqua ammonia. This makes a beautiful red ink. If a coloring fluid is desired for the show-window, the same proportions may be put up in larger quantities. As a red ink it is superior to any article of the kind, and is much used by bankers. For the show-window in the office, or drug store, it is the most beautiful red that can be devised, and costs not much, if any more than the inferior reds now in use for that purpose.



PART II.

Special Therapeutics.

Abortion, Threatened.

If THE pains are very hard, opium (elixir) in doses of twenty drops, until they moderate, then viburnum prunifolium, or V. opulus, should be given in doses of sixty drops, every hour until the pains cease. In some cases I have arrested the progress with five drop doses of ergot, every hour or two.

As a prophylactic, the compound tincture of partridge berry is a good remedy, in doses of one drachm three times a day, until the expected time of abortion has passed away.

Abscess.

Sulphide of calcium, in doses of half a grain of the trituration every three hours, will prevent, if used early, or moderate the suppuration after the abscess has formed. Carbolic acid, or resorcin may be used locally, as antiseptic applications.

Acidity of the Stomach.

Hydrochloric or phosphoric acid, or dilute sulphuric acid, well diluted, say three to four minims of acid to the dose, before meals, often prevents acid fermentation of the stomach. Sulphurous acid, or the sulphite of soda, before meals, prevents fermentation in most cases. Carbolic acid, in doses of one minim, in glycerine and water, prevents gaseous eructa-

tions after meals. The patient should avoid all indigestible articles of diet, and take five minims of nux vomica an hour before meals.

Acne.

As a local application, a solution of borax or boracic acid, will be of material service. So also will a moderate solution of muriate of ammonia, say ten grains to the ounce of water, applied three times a day.

After-Pains.

If they are severe, the elixir of opium, in doses of twenty-five minims, may be necessary, every four hours; usually one dose will check the pains. If this fail, the viburnum opulus, or V. prunifolium will check the pains, if the uterus is cleared of clots. These remedies may be given in doses of one to two drachms every hour, until the pain ceases.

Agalactia.

For the suppression of the milk, the ricinus communis, three to four grains of the extract, or one drachm of a strong decoction, while the leaves are applied locally, will generally restore the secretion. Gossypiium (an emulsion of the seed) has a reputation as a galactagogue; a dose is a wine-glass of the infusion, every twenty to thirty minutes. Pilocarpus powerfully increases the secretions.

Albuminuria.

Turpentine, half a drop to one drop, every two to four hours, is of great value, given night and morning. Gallic acid lessens the loss of albumen. Cannabis indica should be given if the urine is bloody. Chimaphila, in doses of one to two drachms of the fluid extract, every one or two hours, has a decided good effect. Fuchsine, in doses of one to two grains, often arrests the albumen. A milk diet should be used.

Alopecia.

For this disease of the hair bulbs, the following remedy may be applied: Tincture of cantharides one part, to eight parts of castor oil, well rubbed into the roots of the hair, three times a day. One to two drops of tincture of arsenic may also be taken three times a day, or five to six drops of Fowler's solution.

Amenorrhœa.

Aconite is indicated where there is sudden suppression by cold, in doses of one drop every two hours, with five to six drops of pulsatilla, every four hours. If the bowels are constipated, give a pill of aloes at night. If there is anæmia, give iron, cimicifuga, and ammoniated tincture of guaiac, with the tincture of burdock seed, thirty drops each, before meals. If from ovarian torpor, give chloride of gold, one one-hundredth of a grain three times a day. Senecio aureus is a valuable remedy; dose sixty drops three times a day. Ignatia may be given where the suppression is connected with hysteria; dose, one to two drops three times a day.

Anæmia.

In most cases iron is indicated; it furnishes hæmatin in the blood, and may be alternated with nux vomica, five minims of the tincture three times a day, with five grains of the phosphate of iron, between or after meals. Arsenic aids iron; dose one to two minims of the tincture, three times a day. Helonias, in thirty drop doses, three times a day, aids the iron very materially. The hypophosphites are useful, but should not be given with iron. The lacto-phosphate of calcium is a good remedy in cases of anæmia of nursing mothers. Manganese, with iron, is a good remedy, in doses of one to two grains three times a day, with two to three grains of the carbonate of iron.

Angina Pectoris.

Aconite often relieves this disease; dose one to two minims every hour for a few hours. If it has no effect, the patient should inhale five minims of nitrate of amyl out of his hand, every ten minutes, until it gives relief. This remedy seldom fails, but if it should, after an hour or two, let the patient take glonoin, in doses of one one-hundredth of a grain. Ether will check a light attack. Cactus grandiflorus often relieves an attack in a few minutes; dose ten to twenty minims. If the angina pectoris follow a malarial fever, cinchonidia, in doses of two to four grains every two hours, will be apt to relieve it. If the above remedy fail, then give one to two minims of tincture of arsenic every three or four hours, well diluted in water; which will probably relieve.

Aphonia.

If loss of voice occur in connection with hysteria, tincture of ignatia, in doses of one to two minims, three times a day, often cures it. One or two drops of belladonna often relieves it quickly. The tinctures of collinsonia and stillingia, in doses of twenty minims, four times a day, act well. Nitrate of uranium, in the form of spray, is a good remedy when aphonia results from chronic catarrh. Borax in doses of one grain every two hours often aids the cure. The local application of tannin and glycerine is curative in many cases. Ammonium chloride, in the form of a spray, is a very excellent remedy. Ipecacuanha (wine of ipecac), in the form of a spray, may alternate the ammonium chloride in solution.

If from over-exertion, tincture of arsenic, in doses of one minim, may be given every two hours. If attended by fever, aconite, one minim every two hours, should be given. If from paralysis of the vocal cords, oxalic acid, third decimal trituration, one grain every fourth hour.

Aphthæ—Thrush.

Simple thrush in children, is usually cured by borax, in doses of half a grain to two grains of the first decimal trituration, in white sugar. At the same time, the mouth may be washed three times a day with a solution of ten grains to one ounce of water. If there is no improvement in three or four days, then wash the mouth with permanganate of potassium, five grains to the ounce of water. If there be salivation, the chloride of potassium, ten grains to eight ounces of water, may be used. If the disease occur in a very aggravated form, as stomatitis, then let the ulcers be carefully touched with a brush or mop, dipped in a solution of sulphate of copper, ten grains to the ounce of water, three times a day. The patient may also take the eucalyptus, three times a day, alternated with baptisia; dose ten minims of each, well diluted.

Apoplexy, Threatened.

When there is giddiness and headache, in plethoric persons, one minim of nux vomica every hour, may ward off an attack of this dreaded disease. This may be often better accomplished, by giving three to four minims of belladonna as soon as the face flushes. Aconite also should be given every hour in doses of one to two minims. The patient should have a drop of croton oil every ten or fifteen minutes, until it acts upon the bowels well. The feet should be put in warm water, and the head bathed in cold water, until the current of the circulation is diverted from the brain as much as possible. The clothing should all be loosened, so that there may be no compression of the vessels in any part of the body.

Ascites.

When this occurs from inactivity of the kidneys, then give apocynum cannabinum fifteen minims, and digitalis (aqueous extract) some ten or twelve minims, every three hours until the kidneys act well, followed by smaller doses, just so as to keep them active. If this fail, then cathartics may be resorted to; the compound powder of jalap and cream of tartar answers very well. The blood should also be renewed with iron, and helonias dioica.

Asthma.

Cases of uncomplicated asthma may be relieved with emetics of lobelia and ipecacuanha. When relieved, the cure is very frequently effected with remedies that act as antispasmodies, arsenic, for instance, in doses of two minims three times a day, alternated with one minim of nux vomica. If these fail, give the tinctures of grindelia robusta, yerba santa and silphium lac. each one ounce; dose, a teaspoonful four times a day. Arsenic alternated with nux vomica, both in small doses, seldom fails to cure uncomplicated cases: but many cases are connected with emphysema; and while lobelia will give relief, the affection is usually incurable.

Balanitis.

Cleanse the parts every four hours with borax water, and then apply calendula (fluid extract), two parts to one part of glycerine. If there is no improvement in five or six days, use a lotion of five per cent. solution of carbolic acid, twice or thrice a day.

Bed-Sores.

Bathe the sores in whisky, to prevent their spread, and apply zinc ointment to the sores, twice or thrice a day to heal them.

Biliousness.

When patients become what is known as "bilious"; that is, they have a want of action of the liver, give half a grain to one grain of podophyllin, and if it fail to act upon the bowels, repeat it, together with one drachm of the fluid extract of senna or cascara sagrada (rhamnus purshiana).

Bladder, Irritable.

Chronic catarrh of the bladder, or irritable bladder, is characterized by a frequent desire to urinate, and the urine may be increased in color and quantity, or it may be pale, and of usual quantity. The tincture of the honey bee is a valuable remedy for relief; dose, five to six minims, every two hours in the day. I have usually found the benzoate of lithium or the benzoate of ammonium, in doses of five to six grains in half a glass of water, to give speedy relief. Then if any hyperæsthesia remain, I have found the liatris spicata, in doses of thirty to sixty minims in a wine-glass of water, a valuable remedy. In cases of slight inflammation, the tincture of cantharides, in doses of one to two minims every two hours, followed by the tincture of equisetum hyemale, in doses of one drachm, every three hours, generally gives permanent relief.

Boils.

When just beginning to form, the local application of tincture of belladonna, two or three drops, will often abort boils. But if this fail, the boils should be painted three times a day with the compound tincture of iodine. For a tendency to have boils, as is often the case, the sulphide of calcium, in doses of one to two grains of the first decimal trituration, three times a day, is a very positive remedy. Phytolacca is also a valuable remedy in some cases.

Bone, Diseases of.

For bone bruises, an application of ruta graveolens, ten minims, to an ounce each of glycerine and water, is very good treatment. For periositis, if syphilitic, one one-hundreth of a grain of the chloride of gold should be given three times a day. If scrofulous, phytolacca should be given, in doses of ten minims ter in die.

Brain, Congestion of.

When the face is flushed, the eyes are bright, and vertigo, headache, dilated pupils or delirium supervene, belladonna, in doses of three to four minims, should be given twice or thrice a day, until relief is obtained. When accompanied by violent throbbing, or in congestion from exposure to the sun's heat, glonoin (third decimal) should be given in one minim doses every two hours, until relieved. In brain-fog or nervous prostration, with pain or a sensation of emptiness at the back of the brain, the phosphide of zinc, in doses of one-twentieth to one-fifteenth of a grain three times a day, has been successful. In pale subjects, with enlarged tonsils, calcium phosphate, one to two grains three times a day, will aid in the cure. If there is a lack of will-power to undertake anything, picric acid (third decimal) is indicated in doses of one to two grains every six hours. Phosphoric acid (first decimal trituration), two minims every six hours, is indicated, where there is indifference.

Breast, Abscesses of.

As soon as pain and induration appear, bryonia alba, one to two minims, should be given every two hours, while a poultice of phytolacca root is kept constantly on the breast. If the swelling does not give way in forty-eight hours, then give the tincture of phytolacca in doses of five to ten minims every two hours. If suppuration appear, give the sulphide of calcium—hepar sulphur—(first decimal), one grain every four hours, to moderate the suppuration, supporting the gland by broad strips of adhesive plaster, well applied. As soon as pointing takes place, lance the part and let out the pus, and give silica (first decimal), in doses of two grains, every six hours.

For pain below the left breast, in unmarried females, actaen racemosa should be given in doses of from fifteen to twenty minims every six hours; or if accompanied by scanty menstru-

ation, give five minims of pulsatilla three times a day until relieved.

Bright's Disease—Morbus Brightii.

Aconite is indicated in the acute stage, until fever passes off; then tineture of cantharides should be given in doses of one to three minims every two hours, or five or six minims three times a day. If dropsy set in, then digitalis (infusion), in doses of ten to fifteen minims every three hours, is one of our best remedies to unload the tissues. Eucalyptus is sometimes effectual in small doses, say one to three minims, ter in die. Jaborandi is much praised, in doses of five to six minims every hour. Turpentine, in drop doses, every two hours, is a valuable remedy for the dropsy. The bowels should be kept open with the compound powder of jalap, given in doses of twenty to thirty grains in the morning, and repeated at noon if it fail to act. Gallic acid checks albuminuria. Helonias dioica is a valuable remedy in the chronic form.

Bronchitis, Acute.

In the time of chill and then when fever arises, with cough and oppression in breathing, aconite is indicated, one minim every hour; when there are sharp pains in the chest, tongue white, and the bowels rather constipated, bryonia alba, one minim every hour. If the cough become spasmodic, and the patient worse at night, give ipecacuanha, one minim every hour. If the sputa become tough or scanty, syrup of sanguinaria, in doses of three to ten minims, according to age of the patient, may be given every two hours. And if this does not give relief in eight or twelve hours, then the first decimal trituration of bichromate of potassium may be substituted for the sanguinaria. In chronic bronchitis, with profuse, yellow expectoration, the sulphide of calcium may be given in doses of one grain of the first decimal trituration every two hours, until the patient is relieved.

Bruises-Contused Wounds.

If the soft parts are bruised, one of the best remedies is arnica, locally applied; if the contusion be of internal structures, one to two minims of arnica given internally, every hour, will remove engorgement of the injured vessels. If the skin be broken, or lacerated, then the tincture of calendula may be used locally with positive good effects. If it involve the bones, then the tincture of ruta, one minim every hour, will be of essential service. If the injury involve the spinal cord, then the tincture of hypericum may be applied locally, and ten to fifteen minims given internally, until relief is afforded. In some cases where there is much pain, and stasis of the capillaries, a lotion of hamamelis may be applied, every two hours; and if there be no improvement in six hours, it may be alternated with tincture of myrrh.

Bunions.

Iodine should be employed for indolent bunions, where they are thick; rest and fomentations, for recent ones. Rheumatic enlargement of the bursa requires a liniment of tincture of veratrum and menthol (first decimal), equal parts, which may be applied four times a day.

Burns. Scalds.

Where they are slight, without vesication, tincture of urtica urens, one part to four of water, may be used as a lotion by wetting cloths in it and applying. But where there is vesication, one part of tincture of cantharides to ten of cold water may be applied at first, or the carron oil applied until the burning ceases; then a tincture of calendula one part, to two parts of glycerine may be applied until suppuration takes place, and then dressed with Mayor's ointment. An ointment of hypericum is valuable to heal a burn. Sassafras oil, in castor oil, is efficient to heal a burn or scald.

Cachexia.

If there is anemia or a scrofulous tendency, the phosphite of lime, given in doses of two or three minims, ter in die, is a valuable aid to better nutrition. If cachexia is from deficient funcional action of the spleen, a strumous or syphilitic taint, then iron may be given with calcium phosphate. If it be malarial cachexia, then tincture of arsenic in doses of one to two minims three times a day is very efficient. Hydrastin with uvedalia is also efficient in paludal and splenic cachexiae. If cachexia follow long courses of mercury, nitric acid, indoses of three to five minims, will aid in the restoration of health. Where cachexia occurs after syphilitic attacks, iodide of potassium will aid the nitric acid, alternated with it. Berberis aquifolium is a good remedy; the echinacea angustifolia is also very active.

Calculi, Biliary—Gall Stones.

Chloroform has the reputation of dissolving the calculi, in doses of from thirty to forty minims every three or four hours in the day. To relieve the pain, one-fourth of a grain of morphine with one one hundred and twentieth to one one hundred and thirtieth of a grain of atropine, may be used once a day, or twice if necessary. The use of olive oil at night, followed by seidlitz powders next morning, is recommended. Sodium phosphate, in doses of one drachm at meal time for several months, is used as a prophylactic. Succinate of the peroxide of iron, hydrated, which contains a large quantity of nascent oxygen, is given in doses of sixty minims after meals, to prevent the re-formation of the calculi. The diet should be restricted; all starchy articles, and all sugars, fats, malt, spirits, etc., should be avoided. The patient should take outdoor exercise, and should use only lean meats, fish, eggs, and non-starchy vegetables.

Calculi, Renal and Vesical.

Potassium tartra-borate is valuable in dissolving uric acid calculi. It may be given as freely as the stomach will tolerate it. Benzoate of ammonium, if long continued, is said to dissolve phosphatic calculi. Magnesium boro-citrate dissolves uric acid calculi. The carbonate or citrate of lithium are also valuable solvents of calculi. Hydrangea (not the so-called "lithiated,") in the form of a strong infusion of the fresh root, is a valuable remedy, especially when alternated with eupatorium purpureum and actinomeris helianthoides, which is found in North Carolina. Berberis vulgaris is also credited with great solvent power, when alternated with pareira brava. The benzoate of lithium is one of the most active anti-calculous compounds I have found. All the above benzoates have their advocates.

Cancer.

There are three varieties of cancers: 1. Epithelioma, 2. Melanoid, and 3. Scirrhus cancer. The last two named varieties are very intractable. Epithelioma can be eradicated by proper treatment. Cancer of the stomach requires tincture of arsenic in doses of one to two minims to stay its progress. Epithelioma may be enucleated by applying a paste of chloride of zinc, one part to two parts of starch. A local application of five minims of belladonna to the part palliates, where there are severe pains. Conium locally applied relieves the pain. I have used powdered hydrastis with good effect, in several cases. Pure carbolic acid applied before caustics greatly lessens the pain. An application of resorcin fifteen parts to fifteen or twenty parts of vaseline, removes the sepsis.

Potassium chlorate, in fine powder, applied to epithelioma is curative. Salicylic acid, if pure, applied after enucleation, will aid the cure. A solution of chromic acid is a mild escharotic, and may be used of any strength according to the depth of enucleation desired. Epithelioma of the tongue requires thuja occidentalis in the form of the normal tincture internally, in doses of one to two minims, while it is applied locally with a camel's hair-brush night and morning. Phytolacca has constitutional effects, especially when cancer is located on the mammary glands. Arsenic and hydrastis have undoubted influence over most cases of cancer. Hydrastis should also be used locally.

Cancrum Oris-Stomatitis.

This feetid form of ulcers, the stomatitis of children, should be met by the sulphide of calcium internally, and the local application of sulphate of copper with a pencil brush, three times a day. In mild cases the saturated solution of calcium chloride, or dilute hydrochloric acid, five drops to half an ounce of glycerine, applied every two hours, is useful.

Carbuncle.

To relieve the pain, apply belladonna and glycerine equal parts bis in die. The application of the compound tincture of iodine is the best abortive of carbuncle, or boils. This may be used after the carbuncle is fully formed, and as soon as it begins to form. Internally, one grain of the first decimal trituration of calcium sulphide should be given thrice, daily, or every two hours in bad cases.

Catalepsy.

Embrocations of turpentine along the spine will stop the paroxysms. Inhalation of ammonia will arouse consciousness. The treatment in the interval should be that recommended for hysteria, which is cannabis indica, five minims three times a day. After four or five weeks, if the cannabis indica fail, then conium, or cicuta virosa may be tried, in doses of two minims of the third decimal dilution, three times a day.

Catarrh—Cold.

In the acute stage, with chills, aching of the limbs, quick pulse, hot skin, aconite, one minim every hour or two, with three to five minims of belladonna, will be valuable treatment. The inhalation of iodine is a good adjunct to the above treatment. The iodide of murcury and potassium is the remedy for chronic catarrh; dose, one one-hundredth of a grain.

Cerebral Anæmia.

The tincture of chloride of iron is indicated in chronic, general anamia, together with helonias dioica; these should be alternated in doses of fifteen to twenty minims each. Chloral in small doses, if there be spasms, alternated by inhalations of nitrite of amyl, three to five minims valerian, camphor, assafœtida, and serpentaria, will aid the cure, or the mono-bromide of camphor, in from one to five grain doses three times a day, will give much relief. The tincture of nux vomica with the phosphites is called for: tincture of nux vomica, four to five minims, with the hypophosphite of lime, two to three grains, three times a day. Arsenic is very efficient if there is imperfect nutrition of the brain. Dose, one to two minims of the tincture, ter in die. Gold is valuable in vertigo, one one-hundredth of a grain of the chloride of gold and sodium ter in die.

Cerebral Congestion.

In the active form, aconite is a valuable remedy, in doses of one drop every hour, to control the heart's action. Belladonna is indicated in all cases of hyperæmic conditions of the brain and spinal cord; dose three to five drops every six hours, until relief is obtained. If there is arterial plethora, then five to ten minims of tincture of gelsemium every two hours, will aid the cure. Bromide of lithium or sodium will often give speedy relief. Active catharsis will aid the measures already advised. If the temperature is high, chloral is a valuable remedy, in doses of fifteen to twenty grains every two hours until sleep is

procured. If the venous circulation is sluggish, then tincture of arsenic one minim ter in die, is the indicated tonic to the venous stasis.

Cerebral Softening—Ramollissement.

In softening of the brain, the phosphide of zinc is the indicated remedy, in doses of one-fifteenth to one-twentieth of a grain, three times a day. I usually give half a grain of the first decimal trituration, three times a day in mucilage of gum arabic.

Chancre.

Many local remedies are advised, as the "black" and "yellow" wash; boric acid powdered on the chancre will have a good effect at first, and if this does not keep it from spreading, then the ulcer should be covered by iodoform, with an equal quantity of lycopodium; or one to two parts of zinc oxide to one part of lycopodium may be substituted. The peroxide of hydrogen is a valuable application, and is believed to destroy the specific virus, if lint be wet in it and kept on the chancre all the time.

Chicken Pox.

If there is fever, then one drop of tincture of aconite every hour for adults, and one-eighth of a drop for children, or less, according to age, should be given. The skin should be kept open with tincture of asclepias tuberosa. If this fail, give the acetate of ammonium. The itching may be relieved by inunction with camphorated oil, or the application of thin starch.

Chilblains. Frostbite.

The tincture of arnica, applied twice a day, is useful. An ointment of iodine is a very positive cure in most cases. The tincture of benzoin with equal parts of glycerine, applied after soaking the part in warm soapsuds, is a good remedy. Equal parts of sulphurous acid and water is an efficient application.

If the skin be broken, then balsam of Peru ointment is the remedy. Tincture of myrrh, menthol, and oil of sassafras are valuable applications.

Chlorosis.

If the catamenia be obstructed, then iron alternated with pulsatilla, is advisable. In some cases arsenic will be required. Central galvanization will aid the action of remedies.

Cholera Asiatica.

In most cases, if seen early, this disease may be much benefited by giving from three to five minims of saturated tincture of camphor, every half hour. Arsenic is the remedy in epidemic cholera; dose one drop of the saturated tincture, every two hours. Injections of fifteen grains of chloral, dissolved in eight ounces of water, allay irritability of the nervous system. McMunn's elixir of opium, in doses of thirty minims every four hours, will allay irritability in some cases. For the vomiting, the euphorbia corollata is a very efficient remedy. The dose is one to two minims every half hour.

Cholera Infantum. Cholera Morbus.

In cholera infantum, with greenish stools, tincture of ipecacuanha, in doses of one-fourth of a minim to one minim, according to the age of the patient, has acted well with me. If there is great prostration or collapse, tincture of arsenic is the remedy, half a minim every two hours. The sulphate of copper does well where there are watery stools; dose, from one-tenth to one-eighth of a grain thrice a day, until it gives relief. If there is pain in the stomach, bismuth, in doses of two to three grains every three hours, is indicated. If the diarrhea does not yield to the above remedies, then three to ten minims of the saturated tincture of coto bark may be given every two or three hours, and more to adults in cholera morbus. If there are rice water and copious discharges, and prostration, tincture of euphorbia corollata, one-eighth to one-fourth of a

minim, every half hour, has succeeded with me. In adults the dose is from one to two minims.

Chorea-St. Vitus's Dance.

If this disease be due to menstrual obstruction, give cimicifuga, in doses of twenty to thirty minims three times a day, with twenty minims of pulsatilla. In uncomplicated cases, arsenic has often proved successful. The sulphate of zinc also acts well. Hyoscyamus, in doses of ten to fifteen minims, three times a day, often cures. Cuprum ammoniatum has cured this disease. Agaric, one minim every three hours, is also recommended. In some inveterate cases, the acetate of copper has proved successful when continued for a time. Chloral will relieve the paroxysms.

Cold or Catarrh, Acute—Influenza.

If it commences with chill, one to two minims of saturated tincture of camphor on sugar, every half hour, until the chill subsides, is indicated. Then aconite one minim every hour, for six hours, then every two hours, as long as there is fever. As soon as sneezing and running from the nares set in, euphrasia should be given in doses of one or two minims every two hours. If there is a thin acrid discharge, irritating the parts, then the iodide of arsenic is the remedy, in doses of one grain of the second decimal trituration, every three or four hours. If the discharge is thin, but unirritating, then iodide of potassium is the remedy indicated, one grain every two hours. If the nose is blocked up, then tincture of nux vomica is indicated in two or three minim doses, three times a day, with three minims of tincture of sanguinaria for children, and five minims for adults, every two hours.

Colic, Intestinal, or Spasmodic.

Dioscorea one part, tincture of colocynth one part, and essence of peppermint one part, given in doses of ten, twenty,

or thirty minims, according to age, cures colic quickly. It may be given hourly, until it relieves. Nux vomica is also a good remedy. Belladonna cures many cases of colic.

Colic, Lead—Colica Pictonum.

For lead poisoning, alum, in doses of five to ten grains, converts the lead into an inert sulphate. Sulphuric acid will also accomplish this in doses of five minims well diluted, three or four times a day, until relieved. For the violent colic, Mc Munn's elixir of opium will give relief. The bowels should be kept open with magnesium sulphate, or castor or croton oil. For chronic cases, I have succeeded with the iodide of potassium, in doses of five grains three times a day, or two grains every two hours in half a glass of water, so that it will not irritate the stomach. Zinc poisoning is also cured by the iodide, given as above.

Colic, Renal and Hepatic.

Colic from calculi in the gall-duct is relieved with chloroform both inhaled, and taken internally. A combination of one ounce each of dioscorea and peppermint, also relieves the pain of colic, in doses of from three to sixty minims.

Condylomata.

Thuja, one minim, should be given every two hours, and the tincture applied to the condylomata two or three times a day. If this fail, the warty excrescences may be touched with nitric acid until they are destroyed. The acid nitrate of mercury ointment applied to them will destroy them in a few applications. The oleate of zinc applied twice a day will often destroy the warts. A solution of chromic acid, ten grains to one ounce of water, will soon remove these warts.

Coma.

Coma must be met by remedies suited to its etiology. If from arterial plethora, belladonna may be given first, in three minim doses, followed by chloral hydrate, in doses of ten to fifteen grains three times a day, until the patient arouses. The bowels should be opened quickly by a drop of croton oil hourly, until it operates well upon the bowels.

Conjunctivitis, Catarrhal.

For this condition, belladonna with zinc should be locally applied in the following combination: Tincture of belladonna, three minims; zinc sulphate, two grains; aqua rosæ, one ounce. Drop a few drops in the eyes bis in die. If there is a profuse discharge of tears, in addition to the above, give five minims of euphrasia, every two hours. If there is fever, give one minim of aconite every two hours, and use a lotion of boracic acid, eight grains, water one ounce, and apply this to the eye regularly until the inflammation is subdued. If there be no improvement in forty-eight hours, apply ten minims of euphrasia in one ounce of aqua rosæ, constantly to the eyes. If there is profuse suppuration, after the fever is subdued, give one-eighth to one-fourth of a grain of the first decimal trituration of the iodide of arsenic, every four hours to correct this suppurative condition. This is a fine remedy, but the dose must be small.

Constipation, Chronic.

If attended with congestive headache, nux vomica and belladonna, three minims of each alternated, three times a day, often overcomes the constipation. If there be pain in the region of the liver, five minims of bryonia alba, three times a day, will be required. If the stools are dry and light colored, a combination of two to three minims of the normal or saturated tincture of podophyllum peltatum and one drachm of the fluid extract of cascara (rhamnus purshiana) has acted charmingly for me. In many cases where the liver is involved, I use a pill as follows:

Ŗ	Podophyllingrs.	14	or $\frac{7}{5} \frac{1}{4}$
	Ext. Colocynth comp grs.	1	5 1
	Ext. Cascara sagrada grs.	1/2	\frac{7}{5} \frac{1}{2}
	Ext. Butternutgrs.	1 2	3 3
	Ext. Nux vomicagrs.	1 8	5 1/8
	Ext. Hyoscyamusgrs.	1	5 ½

M. Sig. Dose, one to two pills. Each pill contains two and one-eighth grains.

Consumption—Phthisis Pulmonalis—Tuberculosis Pulmonalis.

Hæmoptysis, if profuse, requires lycopus virginicus, or if passive, hamamelis. The bugle weed is used in doses of one drachm every fifteeen minutes until the hæmorrhage is stayed. If the hæmorrhage is passive, five to ten minims of fluid extract of hamamelis should be given every ten or fifteen minutes, until the hæmorrhage is checked. If there are hectic fever, night sweats, diarrhæa, etc., the hypophosphite of lime and sodium will be required, two to three grains each, three times a day, alternated with two or three minims of creosote made from beech trees. I have succeeded in curing several cases by the above remedies, alternated with ptelea trifoliata and euonymus atropurpureus as tonics to digestion and assimilation; dose, thirty minims each, three times a day, with rich diet.

Convulsions, Infantile—Spasms.

In the congestive form, half a minim to one minim of belladonna, according to age, will be apt to suspend the convulsions; if not, then tincture of lobelia inflata three to five minims, with one to three minims of tincture of gelsemium, should be given, and repeated every two hours until emesis is produced, or the convulsions cease. I have known the tincture of melilotus (white clover of the west), in doses of one to three minims, according to the age of the child, to check the spasms kindly,

and very promptly. If the spasms occur during dentition, and there be greenish, watery diarrhea, chamomilla, one to two minims every hour, often checks the spasms. The gums should be cut down to the protruding teeth, and the child's diet should be well regulated, in kind and quantity, or a cure need not be expected.

Corns.

To remove corns, apply iodine, forty grains, alcohol one ounce, to the corn after soaking in warm water. If this does not remove the corn, apply powdered nitrate of silver to the corn just after soaking it in warm water, and scraping off the callous part of it. In a few days the corn can be easily peeled out, and if the hard part is not all out, reapply the caustic, etc. Strong acetic acid, frequently applied, will remove recent corns. A saturated alcoholic solution of mercury (corrosive sublimate) will remove corns, if applied and the corn poulticed after the second or third day. After the corn has been removed by any of the above remedies, the place should be dressed with vaseline and arnica, or vaseline and calendula extract. The permanganate of potassium will remove corns, and so will chloride of zinc.

Cough.

For spasmodic cough, attended by slight expectoration, the tincture of arsenic, in doses of one to two minims in a wine-glass of water, three times a day, is curative. For a cough, with tickling under the sternum, syrup of rumex crispus, in doses of one drachm, three times a day, may be given. In cough at night, with soreness of the chest, lippia mexicana, in doses of thirty minims of the fluid extract every two or three hours, gives me good results. In cough with sharp pains in the chest, the tincture of bryonia alba, in doses of three to five minims, generally gives relief. For dry hacking cough from

¹ See the Author's "Practice."

pharyngeal or laryngeal irritation, give alumina half a grain to one grain every six hours; this will give satisfaction. Belladonna in one to two minim doses will give relief in dry cough with a sensation of something in the trachea. Verbascum does good service in many cases.

Croup, Catarrhal.

In croup, aconite gives the best results at first, in doses of one-fourth to half a minim every half hour for two or three doses; then every hour, until the child is relieved. Lobelia and sanguinaria, one drachm of lobelia to two or three minims of sanguinaria, repeated until emesis is produced, seldom fail to cure. Syrup of ipecacuanha and syrup of senega have proven active with me, and so has the tincture of spongia.

Croup, Membranous.

The syrup of alumina, in doses of a dessert-spoonful, or the powdered alumina in doses of one drachm every twenty minutes, until emesis is produced, often detaches the membrane; if not, it should be followed by sanguinaria and lobelia, to emesis. The chlorate of potassium is a reliable remedy, two to three grains every two hours.

Cystitis, Acute.

For acute cystitis, give belladonna in doses of two to three minims with one drop of aconite, every three or four hours. If there is very great pain from an acrid state of the urine, four to five grains of benzoate of lithium will give relief. Repeat it three times a day if required. As an anodyne, the tincture of cannabis indica, in doses of five or six minims, has a specific effect on the bladder, and is hence very appropriate.

Cystitis, Chronic.

In chronic cystitis, benzoic acid, or benzoate of lithium, five grains every three hours, acts like magic. Liatris spicata,

¹ See the Author's "Practice."

uva ursi and buchu, in strong infusion, may then be used freely to allay pain. The extract of stigmata maydis (corn silk) acts kindly. I have found equisetum hyemale, in doses of one drachm every two hours, to have a very good effect. Eupatorium purpureum also acts well.

Delirium.

The delirium attending typhus or other fevers is generally relieved by three to four minims of belladonna, once or twice a day. Mild delirium in typhus of a less inflammatory form, with hallucinations and nervous excitement, is relieved by five or six minims of hyoscyamus, twice or thrice a day. If the delirium is wild and furious, especially in puerperal mania, with great restlessness, then stramonium will relieve it. Cannabis indica is best where there is maniacal excitement in softening of the brain.

Delirium Tremens.

If accompanied with stasis of the venous capillaries, belladonna should be given. But if it fail, then chloral hydrate in doses of five to fifteen grains once or twice a day, until it produces sleep, has proven valuable with me in several cases. It is equally good in puerperal mania.

Diabetes Insipidus.

Phosphoric acid diluted, in small doses, three times a day, is highly recommended. Jaborandi, in doses of one to two minims every two hours, may cure the disease.

Diabetes Mellitus.

If from nervous causes, phosphoric acid, first decimal dilution, three minims every four hours, will be useful. If from deranged digestion, uranium nitrate, five grains three times a day, with one drachm of fluid extract of rhus aromatica and one drachm of the fluid extract of lycopus virginicus, every four hours, may be given. The tincture of syzygium or the extract,

first decimal trituration, three grains three times a day, is highly praised by many. The diet should be koumiss or boiled milk and meats, and prepared bread; that is, bread made from flour without the starch. Vegetables containing starch or sugar must be avoided. The patient should also exercise freely in the open air.

Diarrhœa.

If from ileo-colitis, one to two minims of tincture of colocynth may be given every hour until the diarrhea is checked. If it is attended with mushy, yellow stools, then the tincture or the compound syrup of rhubarb, in doses to suit the age of the patient, usually checks the discharges in a few days. If not, five or six minims of tincture of coto bark may be added to each dose and repeated every two or three hours. If attended with nausea and greenish stools, ipecacuanha is the remedy, given in doses of one to two minims every hour until the nausea is relieved. Summer diarrhea with nausea and vomiting, calls for veratrum album, in doses of one-eighth to one-fourth of a minim four times a day. Diarrhea with cutting pains and dark stools, calls for the tincture of podophyllum; dose, one minim each hour. Euphorbia corollata acts well in many cases.

Diphtheria.

I commence the treatment with fluid extract of eucalyptus in doses of five to ten minims, alternated with ten to fifteen minims of tincture of baptisia tinctoria, repeated every two hours. At the same time, I have the throat well mopped with equal parts of spirits of turpentine and glycerine, alternated with a solution of five grains of the permanganate of potassium to one ounce of water. Cyanide of mercury is highly praised, so is corrosive sublimate, but they have proved unsuccessful with me. Chlorate of potassium, quinine and chlorate of iron cure mild cases, but have failed with me in the grave form of the disease. Pilocarpine is said to have succeeded in eighty

cases, without a failure. Iodide of arsenic, first decimal trituration, in doses of one-tenth of a grain will improve cases that tend to rapid decomposition of tissue.

Dropsy.

Apis mellifica, five minims every two hours, may be given in acute dropsy, and dropsy following scarlatina. Catarrhal dropsy is met by proper doses of parched squills. For general dropsy, apocynum cannabinum in doses of ten to fifteen minims every two hours, until it either vomits or purges, or acts well on the kidneys, may be used. Dropsy from organic disease of the heart requires arsenic (Fowler's solution), five to six minims three times a day. In some cases of organic heart disease, the tincture or infusion of digitalis aids the apocynum in carrying off the abundant serum from the tissues. Some patients do not bear the above diuretics well. In such cases the acetate of potassium may be used. After the water is removed, the carburet of iron should be given, so as to restore the blood to its normal state.

Dysentery, Flux.

In dysentery attended by rawness, heat, and soreness of the rectum, give small doses of the tincture of aloes, one to two minims every three hours. If attended with colic-like pains, tincture of colocynth, one to two minims every two hours, may be given. The ordinary epidemic dysentery calls for ipecacuanha, as large doses as the stomach will tolerate, say twenty to thirty grains, in milk, every two hours. If the discharges contain much blood, five to ten minims of tincture of hamamelis, every two hours, will give relief. Frequent purges, say once in twenty-four hours, of castor oil, very much aid the final cure of dysentery. For the tenesmus and tormina, I give twenty minims of gelsemium and twenty-five to thirty minims of McMunn's tincture of opium at night, to give rest. Cathartic doses of Epsom salts will do with some persons, but oil is better with others.

Dysmenorrhœa.

If the discharge is scanty or profuse, black and clotted, give pulsatilla, two minims every hour, until relief is obtained. If it fail, then thirty minims of viburnum opulus and thirty minims of V. prunifolium should be given every fifteen minutes until relief is obtained, which will almost always be the case unless there is great narrowing of the os uteri. Belladonna, five minims, often relieves the spasmodic form of the disease. After relief is obtained, give a combination of the tinctures of senecio aureus, caulophyllum thalictroides, and helonias dioica, each one ounce; dose, one drachm at every meal. This should be continued through the interval between the monthly periods, until the patient is well. This course seldom fails to cure the most inveterate cases of this painful affection in woman.

Dyspepsia, Indigestion.

Where there is pain after meals, subnitrate of bismuth in doses of one to five grains one hour before meals, alternated with three or four minims of the tincture of nux vomica, will give relief. If the disease is from eating fatty food, five or six minims of pulsatilla before meals is indicated. If the disease arises from eating sour fruits, or from the use of pickles, then four or five minims of bryonia is indicated, before meals. If the disease is from anxiety or depression of mind, ignatia amara is indicated; dose, five minims of the tincture three times a day. In some cases the tincture of the American gentian (Sampson snake root), in doses of one drachm before meals, is very valuable, especially where there is much gaseous eructation, or where there are frequent attacks of colic. If there is ulceration of the stomach, one minim of tincture of arsenic is indicated, taken before each meal.

Dysuria.

Burning or scalding of the urine, calls for cantharides, one minim of the tincture every two hours, alternated with five grains of benzoate of lithium or benzoate of ammonium, repeated three times a day. This will generally cure. If this fail, thirty minims of liatris every hour or two, alternated with equisetum hyemale, will be very apt to give relief.

Eczema.

If the eczema be over a small space, the application of the ointment of biniodide of mercury, three times a day, will generally cure this disease. Fowler's solution, internally, is necessary in cases where it covers a large space, in doses of five minims after each meal, well diluted. Dulcamara and lappa major, in doses of thirty minims each, three times a day, in the form of a strong tincture, are very valuable. In the acute form, with burning and itching, rhus toxicodendron is required; dose one to two minims three times a day.

Elephantiasis.

Hoang-nan is represented as a positive remedy in this very obstinate disease. The anacardium orientale (oil of cashew) has been praised as a remedy in this disease. Arsenic, with black pepper, is used in India. The dose is one to two minims of the tincture.

Endocarditis.

At the outset, aconite, one minim every hour, should be given to control the excited circulation, alternated with asclepias tuberosa, in proper doses, or bryonia alba, in five minim doses, every three or four hours. If these remedies do not relieve the pain, then give spigelia marilandica, especially if rheumatic pain be connected with the endocarditis. Bryonia is best to limit the effusion, and to promote its absorption. If there be irregular circulation, digitalis, five minims every hour, does good service in most cases.

Endometritis.

Iodine is one of the most valuable local remedies: Iodine seventy-five grains, potassium iodide ninety grains, alcohol one

ounce. Or iodized phenol: Iodine one grain, carbolic acid four grains, applied on cotton. While these local applications may do good in catarrhal cases, there is a risk in using them. Iodoform pencils are also recommended. Arsenic internally is a valuable remedy; dose three to five minims of Fowler's solution, three times a day. Glycerine on a sponge tent has proven very positive for me in many cases.

Enteritis.

Opium should be given at the outset, in doses of ten to fifteen minims of the deodorized tincture every two or three hours, with one minim of tincture of aconite every hour, until a decided impression is made upon the inflammation. At the same time a turpentine stupe should envelop the bowels. The patient's bowels should be kept open with oil, to each dose of which should be added ten minims of turpentine.

Enuresis.

Belladonna is very successful; dose, three to five minims every six hours. If in children, with worms, then santonin, half a grain, three times a day, will give relief. It is also useful with adults, in doses of one grain, three times a day. Lupulin relieves some cases. Rhus aromatica is very valuable in the case of children.

Epididymitis.

If attended with fever, one minim of aconite every hour, with one minim of pulsatilla every other hour. At the same time the testes should be poulticed with mullein leaves, and kept wet with a strong infusion of the same. The patient should put on a suspensory bandage as soon as he leaves his bed. The bowels must be kept loose with salts or oil.

Epilepsy, Falling Sickness.

In cases of atony of the venous capillaries, where the attacks come on usually at night, belladonna, three to four minims at night, often wards off the disease. Potassium cyanide, third

decimal trituration, one grain every four hours, or every eight hours, does good in recent cases. I have kept off the attacks for months, with the bromide of sodium, fifteen grains, and bromide of ammonium, ten to fifteen grains, three times a day. The cenanthe crocata, third decimal dilution, is useful in fifteen minim doses, every six hours. In recent cases, from fright, the tincture of stramonium in ten to fifteen minim doses, three times a day, has acted well for me. Amyl nitrite, five minims inhaled, sometimes suspends the attack.

Epistaxis-Nose Bleed.

Give aconite in one minim doses to control the heart, where the circulation is excited. If from mechanical violence, arnica is the remedy, one to two minims every two hours. Tincture of ipecacuanha, one to two minims every half hour, is highly extolled by some writers. Hamamelis, in doses of five to six minims, with two to three minims of fluid extract of ergot, succeeds in some passive venous hæmorrhages. Plugging the nares with a very strong solution of Monsell's salt of iron on cotton, often arrests the hæmorrhage quickly. Alum and tannic acid, used in the same way, may also check the hæmorrhage. If the hæmorrhage be arterial, compression of the upper front gums, will control it. A solution of Monsell's salt thrown up the nares with a syringe, will often check bleeding from the nose.

Erysipelas-St. Anthony's Fire.

Pilocarpine will cut short this disease if used early, in doses of one-sixth of a grain of the solid extract every hour, until it produces free diaphoresis. Aconite should be administered internally where there is fever, one minim every hour, while the surface is bathed in ten per cent. solution of veratrum viride. If there is pain in the head, three minims of belladonna, every six hours, will relieve that symptom. In most cases, I have found the tincture of chloride of iron a very positive remedy in erysipelas, especially in anemic cases.

As a local application, I have used carbolic acid one part to eight to sixteen parts of water, or oleic acid, repeated every hour or two. If there is swelling of the parts, apis mellifica, two to five minims, three times a day, until the swelling subsides, will do good service. Rhus toxicodendron is a good remedy, as is also veratrum, used locally.

Gastralgia, Gastrodynia.

Dioscorea, in doses of twenty to thirty minims, every fifteen minutes, seldom fails to relieve this diseased condition of the stomach. For gastralgia, bismuth subnitrate is very prompt in most cases; dose, three to six grains, every three hours, in chronic cases only. In the active form, a few drops of chloroform in water is often sufficient to give relief. Some cases require opium, the camphorated tincture or the aqueous extract; the first is most commonly called for. A few drops of ether has often given relief for me, even in grave cases. Chloral hydrate in doses of eight or ten grains will often give immediate relief. The diet of the patient should be well regulated, so as to avoid fermentation of the food in the stomach.

Gastritis, Acute.

Aconite in drop doses, every hour, may be given to control the fever, then one drop of tincture of arsenic every three hours, alternated with bismuth subnitrate, three to five grains. If from poisons, the antidotes should be used first.¹

Gastritis, Chronic.

Give arsenic, one minim every four hours, alternated with three minims of pulsatilla. Powdered hydrastis with bismuth, has proven very positive with me in many cases of chronic gastritis, given in doses of three to six grains. Ammonium chloride is used in Germany a great deal in this gastric inflammation, and is useful, where it is of a catarrhal character. The diet must consist of bland fluids to prevent irritation of the stomach.

Gleet.

If there be pain in the prostatic region, with burning sensation, and frequent desire to urinate, the tincture of cantharides, in doses of one to two minims every three hours, will generally relieve this trouble, and aid in checking the gleet. Piper methysticum has cured very obstinate cases; dose, five to six minims every three or four hours. Small doses of turpentine and copaiba, cure old cases. Oil of sandalwood, five to ten minims three times a day in syrup is useful. The tincture of thuja sometimes acts well; dose, one to two minims. Potassium permanganate, five grains to one ounce of distilled water as an injection, twice a day, often gives prompt results. Fluid extract of hydrastis, one part to three or four parts of glycerine, as an injection, is also favorably spoken of by many physicians.

Glossitis.

Aconite should be used as an internal remedy, and bismuth, twenty grains to one ounce of glycerine and seven ounces of water, as a local application. Washes of alum and borax are also of much benefit. If an abscess form, it should be opened at once, and a free exit be given to the pus.

Goitre.

Injections of tincture of iodine into the tumor are very successful. I have used the compound iodine ointment externally, and the tincture internally in doses of five to six minims three times a day, with good success. Ammonium chloride has proven successful in several cases. Spongia usta is highly praised by some physicians. Fluoric acid, third decimal dilution, three to five minims largely diluted, has cured many cases.

Gonorrhæa-Clap.

During the first stage of inflammation, gelsemium, twentyfive minims with one minim of aconite, should be given three times a day. If there be erections, cantharides one minim, with the above, in alternation, should be given until this symptom is subdued, then gelsemium and aconite may be continued until the discharge becomes thin and of lighter color. Cannabis sativa should then be given, five minims every three hours. An injection of potassium permanganate, five grains to one ounce of distilled water, should also be used night and morning. If there be no improvement in a few days, then use the following prescription:

B. Tincture of cubebs	· 5	2
Balsam copaiba	.5	1
Oil of sandalwood	. I	1
Spirits nitr. dulc	• 3	4
Sig Dose a teaspoonful three times a d	ภช	1

Gout.

Aconite one minim, tincture of colchicum five minims every hour may be given until the fever subsides, followed by the benzoate or carbonate of lithium, five grains every three hours. The salicylate of sodium, in ten grain doses, may be given every three hours. Colchicum externally, and a few drops taken internally, will generally relieve the pain. If the pains fly about from place to place, three minims of tincture of pulsatilla, every three hours, will give good results. In some cases of congestion, and blueness about the joints, tincture of rhus toxicodendron, one to two minims three or four times a day, will aid the cure. Calculous affections with gout, require berberis vulgaris, twenty to thirty minims three times a day, together with the benzoate of lithium.

Gravel, Sandy Sediment.

If the sediment is white or yellow, muriatic acid, in doses of three to four minims in a wine-glass of water, three times a

¹ See the Author's "Practice" for more general treatment.

day, will relieve it. If it is a brickdust sediment of uric acid or urea, benzoate or carbonate of lithia, six grains three times a day, will give certain relief in a few days. The patient should then take a teaspoonful of the tincture of berberis vulgaris, before meals.

Gums, Spongy or Ulcerated.

If the gums are spongy, wash them well three times a day with tincture of gum myrrh, two to four drachms to four ounces of water. If they are inclined to recede from the teeth, then alum should be alternated with the myrrh, used in the form of a saturated solution. If the gums are ulcerated, a solution of two grains of chlorate of potassium to one ounce of water, should be applied to the ulcers.

Hæmatemesis.

If this hæmorrhage be passive, and the blood dark, hamamelis, in five to ten minim doses, every fifteen minutes, will generally arrest the bleeding. If the bleeding is profuse, and the blood bright colored, lycopus virginicus, in doses of one drachm of the fluid extract, or saturated tincture, every fifteen minutes, alternated with two to three minims of tincture of ipecacuanha, will be apt to check the hæmorrhage. If there is arterial excitement, and the lycopus does not control it, then aconite, in doses of half a minim to one minim every hour, will be required to aid the other remedies. If the above remedies do not check the hæmorrhage, then two to three grains of Monsell's salt should be given every fifteen or twenty minutes.

Hæmoptysis.

This form of hæmorrhage is often connected with phthisis pulmonalis, and needs only to be restrained. Here the lycopus has proved most valuable with me. The tincture of ipecacuanha is a very valuable remedy, and may alternate the lycopus. In passive hæmorrhage I have found hamamelis to be sufficient, or it may alternate the lycopus or ipecacuanha. Ergot or

ergotine in doses of two grains every hour or two is very prompt in some cases. Tannic and gallic acids are also very efficient.

Hæmorrhage, Intestinal.

If the hæmorrhage is from any part of the stomach or intestinal canal, I have used two to three grains of Monsell's salt, which has acted promptly. If this form of hæmorrhage be passive, hamamelis, five to six minims hourly, is the remedy.

Hæmorrhage, Post Partum.

Oil of erigeron and ipecacuanha are good remedies; dose of the oil of erigeron, five minims every hour on sugar. The tincture of ipecacuanha may be given in doses of one to two minims every half hour, until it checks or lessens the hæmorrhage, then at longer intervals until it stops it. I have observed that the cannabis indica acts well in many cases, in doses of five or six minims every hour. If the hæmorrhage is passive, five minims of hamamelis will frequently check it in a few hours.

Hæmorrhoids-Piles.

If the pile tumors rupture and bleed occasionally, hamamelis is a valuable remedy, alternated with collinsonia, five to ten minims of each, three or four times a day. If there is much pain, then the æsculus glabra, two to three minims every four hours, is indicated. If there is rawness, prolapse of the rectum, loose motions of the bowels, and bleeding, then the tincture of aloes, one to two minims three times a day, cures some cases. If the bowels are constipated, collinsonia, cascara and juglans cinerea in doses of fifteen minims, the collinsonia being also given in doses of ten to fifteen minims, every eight hours, so as to keep the bowels open, will often be sufficient to cure the disease. A solution of Monsell's salt, ten grains to the ounce, used three times a day, is a good local remedy.

Hay Fever, Rose Cold, Summer Catarrh.

The ordinary hay fever, or summer catarrh, without asthma, may often be aborted by inhalation of camphor and carbolic acid from a solution of equal quantities of each. A spray of the solution of the chlorate of ammonium and chlorate of potassium, used every three or four hours, will often check the catarrh. If these fail, three to four minims of Fowler's solution may be taken three times a day, for a few days. If this has no effect, the iodide of arsenic, in doses of one grain of the third decimal trituration, may be taken, three times a day. If the catarrh affects the trachea or bronchi, or the larynx, then tincture of sanguinaria, in five minim doses, given in honey and water, every two hours, will act admirably. If there be dyspnæa, lobelia may be added to the sanguinaria.

Headache.

Belladonna is the remedy for headache from stasis of the venous capillaries; dose two to four minims once or twice a day, until it gives relief. If from hepatic derangement, iris versicolor, one minim every hour, may be given. If attended with nausea and vomiting, give ipecac until the nausea subsides, then three or four minims of tincture of bryonia. If this does not relieve it, give one grain of podophyllin with one drachm of fluid extract of cascara sagrada so as to operate upon the bowels. If of neuralgic character, give a few grains of chloride of ammonium. In some cases bromide of lithium is very good, in doses of ten grains every three or four hours until relief is afforded. If at the monthly period, pulsatilla is the remedy.

Heart, Dilatation of.

If there is dilatation and hypertrophy of the left ventricle, digitalis will give some relief. Here cactus will also act well. If accompanied with dropsy, digitalis and apocynum cannabinum, in doses of fifteen minims each, may be given with good results.¹

¹ For general treatment see the Author's "Practice."

Heart, Functional Disease.

Cactus grandiflorus or C. bonplandii, in doses of ten to fifteen minims every two or three hours, often gives the needed relief in a few hours. If there is depression, and a want of power of the heart, digitalis is indicated in doses of ten or eighteen minims, three times a day; if the digitalis fail, the convallaria majalis should be tried, especially in aortic disease. If there is pain of a neuralgic character, nitrite of amyl should be administered by inhalation, five minims every ten or twenty minutes, from the open hand.

Heart, Valvular Disease.

In this affection, in addition to cactus to quiet the palpitation, arsenic should be given, say five minims of Fowler's solution three times a day. If there is pain, spigelia is required.

Hepatic Cirrhosis.

Arsenic in small doses, say one minim of the tincture three times a day, will do much good. Bryonia alba, in doses of three to four minims, is of much value in this disease; it may be given four times a day. The iodides are also valuable. The sulphate of sodium produces good results. Chloride of gold and sodium, in doses of one one-hundredth of a grain, may be used in alternation with the phosphate of sodium. The diet must be light.

Hepatic Congestion.

This is often the result of an abuse of mercury. Here the chionanthus virginica, alternated with nitro-muriatic acid, seldom fails to reduce the liver to its normal state. If these remedies fail, cheledonium acts well, as does also the phosphate of sodium, in doses of one to two drachms ter in die.

Hepatitis. Hepatic Abscess.

Ammonium chloride acts positively in hepatitis, and aids in preventing hepatic abscess. Cheledonium is of much utility

in both acute and chronic hepatitis. The sulphate of sodium or magnesium, which increases the watery exudation, aids in reducing the inflammation.

Hernia.

In strangulated hernia, the inhalation of chloroform assists in the reduction of the incarcerated intestine. If it fail, then lobelia should be given in doses of six minims every fifteen minutes until the muscular system is relaxed, so that the strangulated hernia can be relieved. Sneezing, freely produced with snuff, or any good sternutatory, aids the reduction of the bowel. A tobacco poultice may cause relaxation if lobelia fails.

Herpes.

The arseniate of iron, in doses of one-eighth to one-fourth of a grain, will often effect a cure. To allay irritation, the parts may be anointed with the ointment of hypericum (St. John's wort), or first washed in a solution of potassium carbonate, thirty grains to one pint of water. Glycerine, or the glycerole of boric acid is a good application to herpes labialis. Alum is a good application in herpes praeputialis, say one drachm to one ounce of pure water, applied on lint.

Herpes Zoster-Shingles.

As an internal remedy, rhus toxicodendron, in doses of one to two minims every two or three hours, is apt to give relief. I have found an ointment of creosote a good local application for the pain; the ointment of hypericum is also a most valuable application. Arsenic is the remedy in the chronic form of the disease; dose, one minim of the tincture.

Hiccough.

Two or three doses of nux vomica, one minim every hour, often relieves hiccough. In hysterical cases, musk, alternated with assafætida, often cures.

Hip-Joint Disease—Coxalgia.

Menispermum (yellow parilla) is a good internal remedy. The patient should also take three grains of the hypophosphite of lime, three times a day. The hip should be anointed several times in the day, with an ointment of uvedalia and the oil of cedar.

Housemaid's Knee.

If in the acute state, apis mellifica should be given in doses of one minim every three hours, while the knee is kept anointed with compound ointment of iodide of potassium. If it is chronic, then rhus toxicodendron is the remedy indicated; dose, one minim every three hours, and ten minims of the first decimal dilution also applied occasionally to the knee.

Hydrocele.

Injections of tincture of iodine, one part to two parts of water, thrown into the sac, frequently succeeds in the cure of hydrocele. Ammonium chloride, in the form of a lotion, often does good in the forming stage, in cases of children. The galvano-puncture, with a current of twenty to forty elements, by means of two needle electrodes, almost always cures this disease.

Hydrocephalus, Acute.

Lotions of iodine to the scalp, or inunctions of iodine ointment, while ferric iodide and cod-liver oil are given internally, are highly praised in the acute form. The ferric iodide is also a good remedy in the chronic form of this very intractable disease. Iodide of potassium promotes absorption, and hence is of material service. Cod-liver oil furnishes food to sustain the patient for a time; dose, one drachm.

Hydrophobia—Rabies.

To prevent this disease, the bitten part should be well cauterized immediately with chloride of zinc or caustic potash,

and one drachm of the tincture of echinacea angustifolia given three times a day. As soon as there are any symptoms of the disease, the tincture of scutellaria should be given, in doses of forty to sixty minims, four times a day, with five minims of tincture of belladonna at night. If this does not arrest the symptoms of spasms, let the patient inhale five minims of nitrite of amyl occasionally, as required, and take medium doses of glonoin. While the wounds are open, they should be constantly well washed with a saturated solution of the permanganate of potassium. Warm baths quiet nervous excitement. The echinacea has cured for me.

Hydrothorax.

As diuretics, digitalis in ten minim doses, and apocynum cannabinum, in fifteen minim doses, every two hours, are often efficient as drainers of the blood, and promote the activity of the kidneys. Jaborandi has good effects in some cases. Eupatorium purpureum acts well on the kidneys. When once the fluid is removed from the thoracic cavity, the carburet of iron (Vallet's iron mass) may be given freely, to prevent the return of the dropsy.

Hysteria.

Ignatia is valuable where a ball-like sensation is felt in the throat. Assafætida is one of our best remedies where there is a convulsive tendency. Valerian, in doses of thirty minims, is also a good remedy. If there are severe spasms, the bromide of lithium or sodium does well, in doses of ten to fifteen grains, three times a day.

Ichthyosis.

The oleate of zinc applied three times a day has a good effect in this affection. The bicarbonate of sodium, three drachms to a pint of water, as a lotion, is also very useful.

¹ See my "Practice."

Impetigo.

Internally, arsenic is useful, especially the iodide of arsenic, in doses of one-twentieth of a grain three times a day, well diluted in water. As an external application, the glycerite of tannin answers well.

Impotence.

A pill of zinc phosphide, one-twentieth of a grain to the pill, three times a day, is valuable in this disease. The chloride of gold, in doses of one one-hundredth of a grain, three times a day, aids the cure; it may be alternated with the zinc phosphide. Tincture of nux vomica, in doses of one to two minims, is a good remedy. Cannabis indica is very useful; dose, three to five minims, three times a day. Damiana has proved valuable for me.

Insomnia—Sleeplessness.

This condition may originate from quite opposite conditions of the brain. In many forms of insomnia, chloral hydrate, in doses of ten to fifteen grains, has proven very efficient in my hands. It is unrivalled in insomnia from delirium tremens. The bromides of sodium, lithium or ammonium act well in insomnia from over-action of the mental faculties. Hyoscyamus, belladonna, cannabis indica, ether and chloroform, are more active when used with the bromides. Hyoscyamus is a good substitute for opium in cases of insomnia of children. If there is low arterial tension, and contracted pupils, belladonna will act well. Paraldehyde, in doses of thirty minims, is an active hypnotic, without depressing the heart. Jamaica dogwood acts charmingly, in doses of ten to fifteen minims, and is not as injurious as opium.

Intermittent Fever, Chills and Fever.

The various alkaloids of cinchona act almost as specifics in periodical fevers. It is best to procure a complete intermission, in case of intermittent fever, or as complete a remission as possible; when the fever is of a remittent form, then give the cinchona alkaloids in doses of five grains of quinia, or six or seven grains of cinchonidia, at each interval. In the graver forms of the disease, larger doses are required. I have never given more than twelve to fifteen grains in the apyrexia in the climate of Georgia. If these remedies fail, they may be alternated with ptelea trifoliata. Arsenic has proved active with me in the chronic forms of malarial poisoning. In other cases the compound tincture of iodine has proven active; dose, three to six minims of Lugol's solution.

Intestinal Obstruction.

Very small doses of opium, one-eighth to one-fourth of a grain every four hours, for three or four days, are claimed to arrest the dangerous symptoms, and to open up the bowels. Belladonna often succeeds, in doses of three to four minims of the tincture twice or thrice a day, for two days. But I have found senna and jalap, in full doses, the safest remedy, when assisted by enemata of warm soapsuds, or glycerine and water.

Intussusception.

Belladonna in eight minim doses of the tincture as an enema, often succeeds in relieving this condition; effervescent enemata have also succeeded. Tobacco enema, may overcome the intussusception, but it is dangerous; one drachm of tobacco to one pint of hot water is strong enough. Lobelia relaxes sufficiently, and is not so dangerous as the tobacco. The tincture of lobelia will relax completely, if given in doses of one drachm every half hour, for one or two doses.

Jaundice.

Cheledonium (celandine) has a fine effect upon the liver. Bryonia has acted well in some cases for me, in doses of three to five minims every four hours. But the most positive remedies I have found are the tinctures of chionanthus virginica and berberis vulgaris, in doses of one drachm each, three times a

day. Mercurials produce jaundice, but have not cured it for me. Nitro-muriatic acid aids the cure, when the disease is produced by mercury. Euonymin stimulates the functional action of the liver very powerfully, and certainly; dose one to two grains of the pure extract. Sodium phosphate is a superior remedy for torpid liver; dose, one drachm every four hours. Aloes as a cathartic, or aloes and podophyllin, in small doses, often act well upon the liver in jaundice.

Laryngismus Stridulus—False Croup.

Aconite, in doses of one-eighth to one-fourth of a minim, according to the age of the child, checks the spasm, and relieves the croupous breathing. The bromides will suspend the attack, and then, continued in small doses, will cure it. Ipecacuanha and sanguinaria, will often cut short the disease at the outset. They may be given in doses to suit the age of the child, or youth. Inhalation of a few drops of chloroform quickly checks an attack. Nitro-glycerine, will speedily allay the spasms, and so will chloral hydrate.

Laryngitis, Acute or Catarrhal.

Aconite, in doses of one-eighth to one-fourth of a minim, according to the age, etc., will remove the inflammatory element of the disease. Rumex crispus is a valuable remedy for the cough and irritation. Inhalations of the steam of hot diaphoretics, such as catmint, sage, horsemint or others of the class, will be followed by good results.

Leucorrhœa-Whites.

As a local application, hydrastis and glycerine, equal parts, used with a good syringe, three times a day, are useful. If the discharge is offensive, or acrid, the permanganate of potassium, five grains to one ounce of water, is a good wash. Pulsatilla, five minims, three times a day, does good service. Boric acid, one drachm to one pint of water, as a wash, is beneficial. Some cases are improved by twenty to thirty minim doses of cimi-

cifuga racemosa thrice daily. Dry tannic acid packed in the vagina, has especial curative influence. Sabina, ten minims to four ounces of water; dose, a teaspoonful three times a day, is highly commended. Sepia is recommended where the leucorrhea is corrosive; dose, one-fourth to half a minim three times a day. Washes of alum are sometimes curative.

Lichen.

Local applications of a solution of nitrate of silver in nitrous ether, painted over the parts, have a good effect. Warm baths of the sulphides are valuable. In prickly heat, zinc oxide dusted over the parts allays the irritation.

Lithæmia-Excess of Urea.

The carbonate of lithium, given in doses of five grains, well diluted in water, one hour before meals, is a very positive remedy for this malcondition of the urinary apparatus. Benzoate of ammonium has proven most positive with me, as has also the benzoate of lithium and borax, in about the same dose. These alkalies not only prevent the formation of excess of urea, but it is likely that they tend to decompose calculi in any part of the urinary tract. Liatris spicata gives much relief, and so does equisetum hyemale, the scouring rush.

Lumbago-Lumbar Rheumatism.

If recent, aconite, in doses of one to two minims, may be given three times a day, for the first two days, while the patient takes salicylate of sodium three times a day. If no relief is experienced, give two minims of normal tincture of macrotis racemosa, three times a day. If the pain is less while the patient is exercising, rhus toxicodendron, in doses of one to three minims three times a day, will give the desired relief.

Lupus-Face Cancer.

In most cases it is better to remove the diseased part with an arsenical paste, or with the oleate of arsenic, applied to the raw surface. After the ill flesh is thus removed, then the sore should be washed with saturated solution of boracic acid, and then daily covered with powdered hydrastis canadensis.

Mastitis.

If there is a likelihood of the mammary gland suppurating, belladonna ointment should be applied, and the gland suspended with strips of plaster. The patient should take eight or ten minims of the tincture of phytolacca, every two hours, until the breast becomes soft and the swelling subsides. This often arrests the inflammation, and prevents suppuration. If suppuration has already taken place, then the sulphide of calcium should be given, in grain doses of the trituration, every three hours. If the pain is great, a plaster of extract of hyoscyamus, or stramonium, should be applied for a few hours, until the pain is relieved. Ammonium chloride, in strong solution, is a good application to the inflamed mammary gland.

Measles.

For the regulation of the eruption, and to prevent unusual results, give pulsatilla, and aconite, alternated, half a minim to one minim, every hour, for a few days. If the eruption should recede, give three minims of tincture of camphor until the eruption reappears on the surface. If the cough is very troublesome, drosera is a valuable remedy; dose, twenty to thirty minims every two hours.

Meningitis, Cerebral.

Aconite should be given in doses of one minim every one or two hours, according to the severity of the inflammation. In this disease, belladonna, as in all hyperæmic conditions of the spinal cord and brain, is indicated in doses of three to five minims every six hours. If there be arterial excitement, three to five minims of tincture of gelsemium should be given hourly, in alternation with the aconite.

Meningitis, Cerebro-Spinal.

This disease is also called spotted fever. Aconite may be given in doses of one minim every two hours, and five or six minims of gelsemium every alternate two hours. If there be delirium, then five minims of belladonna should be given every six hours. At the same time, there should be kept up active counter-irritation to the spine. Croton oil, one to two minims, should be given to purge.

Menorrhagia.

If this hæmorrhage should be connected with a relaxed condition, moderate doses of ergot should be given to counteract this relaxed state; and drop doses of tincture of fresh ipecac, should be given every fifteen minutes for a few hours. If this fail, the oil of erigeron should be tried, in doses of five or six minims on sugar, with five minims of cannabis indica. Quinine cures some cases.

Metrorrhagia.

Here the ipecac may be first tried, in moderate doses, five to six minims, frequently repeated. If the hæmorrhage be severe, and if it be not checked by this remedy, then give the oil of erigeron, and if the oil of cinnamon is added, so much the better. If these fail, I have found cannabis indica, in doses of five or six minims, every two hours, to be useful in checking the hæmorrhage. I find also that some cases are benefited by the use of bebeerine (from the bebeeru tree), in doses of three to five grains, every two hours. If this cannot be procured pure, quinine may be tried in doses of three grains every two or three hours. Absolute rest should be enjoined. In a few cases I have used cold baths to aid the medicines.

Myalgia.

Cimicifuga frequently relieves this painful affection of the muscles. Bryonia, in doses of five minims every three hours,

is a very positive remedy. Ammonium chloride in doses of ten to twenty grains is also very effective.

Myelitis.

Belladonna is an effective remedy in most cases; dose, three to four minims twice or thrice a day. Silver nitrate may be used, in doses of one-eighth of a grain ter in die.

Nævus-Mother's Mark.

Locally, thuja occidentalis, one to two applications a day, may do good. If the nevus be not too large it can be removed with nitric acid, applied by dipping a soft stick in it, and touching the surface once every few days, until it disappears. The injection of ferrum perchloride is successful, but dangerous about the head or face.

Neuralgia.

In neuralgia of the face, ears, or eyes, twenty to thirty minims of gelsemium have often given relief for me. If from stasis of the capillary circulation of the brain and spinal center, three to five minims of the normal or saturated tincture of belladonna, three times in the twenty-four hours, will usually effect a cure. If from ramollissement of the brain or spinal center, then hypophosphite of lime, in three grain doses, three times a day, will aid the cure. Ammonium valerianate, or zinc valerianate will do good service. Staphisagria is valuable in cases of facial neuralgia. Ignatia is useful in hysterical neuralgia. Ammonium chloride, in doses of twenty grains, is a very active remedy.

Nipples, Sore or Fissured.

Benzoin is a good local application. The cerate of arnica, and calendula, each two ounces, with glycerine one ounce, and applied three times a day, is beneficial. If the fissures are deep, first apply a strong solution of nitrate of silver, then wash in a saturated solution of boric acid, just after the child nurses. The glycerite of tannin is a very good application, after wash-

ing in the boric acid. A good protection to the nipples, is the balsam of Peru or the balsam of tolu in the form of the saturated tincture. A saturated tincture of rhatany is a good application after the child nurses; this should be carefully removed with warm water before the child again nurses, and a nipple shield should be used.

Nymphomania—Erotomania.

The tincture of origanum, in doses of one minim three times a day, alternated with hyoscyamus, or stramonium, three times a day, is useful in this disease.

Odontalgia—Toothache.

Tincture of staphisagria, dropped in the cavity of the tooth, will relieve the pain. Chloral rubbed up with an equal weight of gum camphor, is very apt to give quick relief. Chloroform or croton chloral often relieves the toothache when there is a cavity in the tooth. I have often given relief with creosote on bits of cotton, put in the cavity. A five per cent. solution of cocaine, will afford relief. Menthol, in a saturated solution, on cotton, will mitigate the pain, and so will oil of peppermint, on cotton, kept in the tooth. The bowels should be kept open with an aperient.

Orchitis.

Pulsatilla, two to three minims every one or two hours, according to the extent of the inflammation, is useful. Aconite should be given, if there is much fever. An application of cloths wet in a strong infusion of mullein aids in the removal of the inflammation.

Otitis.

For ordinary inflammation of the external auditory canal, a warm lotion of tincture of pulsatilla, applied by a sponge, or thrown into the ear by a syringe, is beneficial. Aconite given internally, and a lotion of two or three minims to a teaspoonful of warm water, will give relief to the pain, and aid in the removal of the inflammation.

Otorrhœa.

I have succeeded in curing this disease by giving the bichromate of potassium, and washing out the ear with boric acid, say five or six grains to one ounce of pure water, three times a day.

Ovarian Neuralgia.

Ammonium chloride, twenty-five grains, alternated with one to two minims of aconite, very frequently relieves this disease. If the pain is like colic, colocynth, one or two minims, every two hours, will give relief. In congestion of the ovaries, lilium tigrinum, one minim every hour, is indicated. If accompanied by scanty or suppressed menstruation, pulsatilla, three minims, three times a day, is beneficial. For chronic induration, the chloride of gold and sodium is indicated; dose, one one-hundredth of a grain, three times a day.

Ovarian Tumor.

Ovarian tumors call for iodide of barium, or bromide of potassium, one grain every hour.

Oxaluria.

Nitro-muriatic acid may be given, well diluted, in two to three minim doses, three times a day. If attended with colic, or irritation of the urinary channel, the tincture of berberis vulgaris, ten to fifteen minims every two hours, is indicated.

Ozæna-Scrofulous Catarrh.

A spray of a solution of the muriate of hydrastia, one grain to the ounce, is a very good local application. I have used a spray of a solution of permanganate of potash, three or five grains to the ounce, with fine effect. Internally, chloride of gold and sodium, one one-hundredth of a grain, may be given three times a day. If there are thick plugs formed, bichromate of

potassium, third decimal trituration, in doses of two grains, three times a day, has done good service for me. If the discharge is acrid, then the iodide of arsenic is the internal remedy, the third decimal trituration, in doses of one grain three times a day. Boric acid used as a spray, or by means of a good syringe (always warmed), or used with a douche, is beneficial. Phenate of iodine applied by a spray, is also a good remedy.

Paralysis.

In the early stages, belladonna is the remedy indicated. If it is attended by twitchings, give phosphorus, third decimal dilution of the tincture, in five or six minim doses, every four hours. If attended with wild dreamy delirium, cannabis indica is the indicated remedy, in doses of three to five minims every four hours.

Hemiplegia.—The carbonate of baryta, third decimal trituration, should be given in doses of from one to two grains *ter* in die.

Paraplegia.—If from accidental bruises, arnica, one minim every two hours, is the indicated remedy; tincture of hypericum, should also be applied locally. If from syphilis, iodide of potassium, three grains three times a day, is indicated, alternated with tincture of xanthoxylum, in doses of thirty minims three times a day.

Paralysis Agitans.

Hyoscyamus sometimes does good service; dose five to six minims twice a day.

Pertussis-Whooping Cough.

Aconite should be given for the inflammatory stage. Ipecacuanha in the form of tincture is useful. Pulsatilla, half a minim to one minim, three or four times a day, does much good. Belladonna is good in the early stage, in doses of onefourth to half a minim. Drosera is the remedy after the inflammatory stage has subsided, in doses of five to ten minims, as suits the age of the child. Coccus cacti is also a good remedy; dose, one to two minims.

Pharyngitis.

Aconite is the remedy, in doses of one minim every hour, alternated with one to two minims of belladonna every three hours. If the disease does not yield to this treatment, the chloride of ammonium is a good remedy. It should be given in doses of two grains, with five minims of tincture of cubebs every hour, and often controls the disease quickly. A decoction of xanthoxylum is a good gargle.

Phlebitis.

Hamamelis has specific power over the venous system, and is a very positive remedy in phlebitis. It may be applied locally, and given internally, in doses of three to five minims every two hours.

Phlegmasia Alba Dolens.

Aconite and pulsatilla, alternated, one minim each, are indicated every hour at first, then at longer intervals, as the disease yields to the treatment. If the patient does not mend, then hamamelis may alternate the aconite. The limb should be well steamed over the vapor of vinegar, as it is evaporated over moderately hot rocks or bricks. This should be repeated twice or thrice a day, until the swelling declines; then the limb may be occasionally well bathed in a tincture of hamamelis.

Phthisis Pulmonalis—Consumption.

Creosote from the beech tree, one minim, repeated three times a day, has done good service for me, alternated with calcium phosphite, two grains ter in die. Warm dry air, with exercise and a nourishing diet are the chief means of restoration to health, in this disease.

Pleurodynia is often associated with phthisis, and bryonia

alba, alternated with asclepias tuberosa, is the remedy indicated.

Pneumonia may also complicate the early stages of phthisis. Aconite and sanguinaria will meet this affection. Phosphorus will be called for in the after-stages. If there be pleuro-pneumonia, one to three minims of bryonia will be called for, every three hours. If the cough be troublesome, a few drops of hyoscyamus will be required at night to give rest.

Polypus, Nasal.

Give thuja, one minim every six hours, and apply the same to the polypus night and morning. If it does not disappear in eight or ten days, then give bichromate of potassium, third decimal trituration, two grains every six hours, and paint with a solution of two grains of the bichromate of potassium to the ounce of water, night and morning. Hydrastis applied night and morning is very efficient, and so also is sanguinaria, one part to about five parts of sugar. If the polypus be soft, tannin applied in powder, will sometimes remove it in a short time. If the polypus be hard, zinc chloride may be applied locally, every day. Acetic acid injected into the tumor will cause it to drop off in a few days. It can also be seized with a pair of nasal forceps and twisted off at its neck, and alum applied after its removal, to prevent its return.

Prostatitis-Inflammation of Prostate Gland.

Acute inflammation of the prostate gland requires thuja, one minim every two hours, alternated with two to three minims of pulsatilla. Chronic inflammation requires iodide of potassium, one grain every four hours. The patient may also take one minim of staphisagria. For great enlargement in old men, nitrate of silver, third decimal trituration, should be given in doses of three grains every three or four hours, until the gland softens.

Prolapsus Ani.

Internally, nux vomica is a good remedy, and a solution of Monsell's salt applied to the prolapsed bowel, always cures for me. A saturated solution of tannin, is also a good remedy. Alum, in solution, six grains to one ounce of water, frequently applied, will cure most cases in a few days. The bowels may be kept open with senna and cascara, equal parts; dose, one drachm.

Prolapsus Uteri.

Nux vomica internally, or sepia, while the parts are constringed with a saturated solution of Monsell's salt of iron, cures this disease quickly for me.

Pruritus-Itching.

Alkaline baths, as for instance, a solution of borate of soda, followed by carbolic acid ointment, have a good effect. Lloyd's asepsin, in saturated solution in alcohol, has proved valuable for me. Iodoform ointment is also a good local application. The compound tincture of benzoin sometimes gives relief. Sulphurous acid, freshly made, does well. An ointment of salicylate of sodium, or of salicylic acid, is also a good local application. I have used the ointment of the biniodide of mercury with prompt effect in some cases. This may be used in the strength of ten or twenty per cent. so long as it does not cause pain.

Psoriasis.

Internally, arsenic, in doses of one minim about three times a day, soon heals this disease. It may be aided by the tincture of lappa major semina, used in doses of a teaspoonful three times a day for some time. It is slow, but very certain.

Puerperal Convulsions.

Internally, gelsemium has had good effects with me, in doses of twenty drops. Chloral hydrate, in doses of ten to fifteen grains, also acts promptly. If this fail, inhalations of chloroform are very certain in their effect.

Puerperal Fever, Childbed Fever.

Aconite, in doses of one minim every hour, until the heart responds to its action, and then every two hours, seldom fails to control this disease. If it fail, one minim of veratrum viride, every two hours, may be tried. The sulphites may be given for the sepsis which is generally present.

Puerperal Mania.

Stramonium is indicated if the disease is attended with wild and furious mania, or hallucinations, in doses of three minims every three or four hours, until the brain is quieted. Hyoscyamus is the remedy in mild, quiet mania. Aconite should be given to control the heart. After the fever passes off, five to eight minims of cimicifuga acts well. If there is nervous excitement, and sleeplessness, chloral hydrate, in doses of ten to fifteen grains, acts like a charm.

Puerperal Peritonitis.

Aconite has a good effect where the pulse is frequent and small, in doses of one to two drops, every hour. If the pulse beats are full, strong and fast, then veratrum is required; dose one minim every hour, until the pulse becomes slower, then every two hours, until the pulse comes down to the normal standard.

Purpura Hæmorrhagica.

Hamamelis is required, the normal tincture, in doses of three to five minims every hour, until the hæmorrhage is controlled. This disease requires phosphoric acid, one to two minims every two hours. Muriate of iron is also indicated where the blood is thin.

Pyæmia. Septicæmia.

Quinine in full doses is advocated by some writers. Salicin reduces the temperature and controls the cerebral symptoms. Salicylic acid has its advantages. Lloyd's asepsin has also very active antiseptic power. If it arise from wounds, boric acid is a good local application. Permanganate of potassium, one-fourth of a grain, thrice daily, has great antiseptic power. Internally the iodide of arsenic does good service, and so does baptisia tinetoria.

Quinsy.

At the outset, I have usually cured this trouble, as well as tonsillitis, by giving two grains of the first decimal trituration of baryta, alternated with one minim of the tincture of aconite, every two hours. Locally, let the patient use a gargle of ten minims of tincture of phytolacca decandra to four ounces of water, frequently. If suppuration ensue, the sulphide of calcium (hepar sulphur) is indicated in doses of one to two grains of the first decimal trituration, every hour or two.

Relapsing Fever.

When the fever is increased by movement, bryonia alba, five minims every six hours, is required. If there is restlessness, rhus, one minim every two hours, is the remedy. If there are gastric symptoms, then baptisia, in doses of three to five minims every two hours, alternated with eupatorium perfoliatum in doses of thirty minims every two hours, does well in most cases.

Remittent Fever. Bilious Fever.

While the fever is high, cold water compresses to the head, and one minim of aconite and ten minims of gelsemium, every two hours, until the remission is procured, is the treatment; then five to six grains of quinine or cinchonidia should be given, in divided doses, so as to bring the system under its influence before the fever again rises. If the atmosphere is

severely poisoned with the malaria, then it will require eight or ten grains of quinia or ten to fifteen grains of cinchonidia to counteract the depressing effects of the poison. If the disease is of a low type, it may require Fowler's solution of arsenic, in five minim doses every three hours. If there be nausea, one to two minims of tincture of the fresh root of ipecacuanha is required, every ten or fifteen minutes, until the irritated stomach is quieted.

Rheumatism, Acute.

In the acute stage, aconite is one of our best remedies; dose one to two minims, every two hours. Salicin, five grains three times a day, or salicylic acid, five grains, three times a day, frequently cuts short the inflammatory symptoms in two or three days. Salicylic acid is more active than the salicylates, but cannot be borne more than three days before unpleasant effects occur. When the joints remain stiff and painful after the fever is reduced, bryonia, in five minim doses three times a day, has done well for me. In many of my recent cases where the pain is less while the patient is up, rhus tox. has given good results. Colchicum does well in some cases, and so does phytolacca. In the chronic form, cimicifuga is a very positive remedy.

Scabies—Itch.

An ointment of sulphur well rubbed in, once a day, for three days, the skin washed well in warm soapsuds, and the clothing changed, is usually sufficient to get rid of this disease. The calcium sulphide (hepar sulphur) is a very active remedy, in solution, applied twice a day. Storax, applied in olive oil, also cures itch. Balsam of Peru kills the acarus at one application. Rub in one drachm over the body, after first taking a warm bath. A solution of benzoic acid, twenty grains to eight ounces of water, is also effectual in most cases.

¹ See the Author's "Practice,"

Sarcinæ and Torulæ of the Stomach.

The sulphites or hyposulphites are very positive remedies for sarcinæ and torulæ of the stomach. Dilute sulphurous acid before each meal is also curative of this affection.

Scarlatina—Scarlet Fever.

Scarlatina Simplex.—Aconite, one to two minims every hour, for adults, and one-eighth to one-fourth of a minim for children, alternated with belladonna, one-fourth to one-eighth of a minim for children, or three minims for adults, every four hours, is good treatment.

Scarlatina Anginosa.—If the fauces are much swollen, give one minim of tincture of apis mellifica (the honey bee), alternated with aconite, one minim for adults, or one-eighth to one-fourth of a minim for children. If there are acrid discharges from the throat and nose, give arum triphyllum, one-fourth to one-eighth of a minim for children, one minim for adults, three or four times a day, well diluted.

Scarlatina Maligna.—Give baptisia, three minims every hour, to adults, and one minim to children, and use a gargle of twenty grains of boric acid to the ounce of water. If there is great depression, give two grains of quinine every two hours, to support the patient's vital force.

Scrofulosis—Scrofula.

This affection yields slowly to treatment. The iodide of ammonium is a valuable remedy, and the tincture of iodine may be applied to the enlarged glands at the same time. The tincture of lappa minor semina, in doses of ten minims, may be given, in the syrup of menispermum, three times a day. This course cures for me.

Scurvy.

This disease mostly originates from the excessive use of salt provisions, and is met by a change to a fruit and vegetable

¹ See the Author's "Practice."

diet, with lemon acid, sweetened, as a drink. Vinegar or cider is also good where the lemon acid cannot be procured. Boiled dried fruit may be used at meals with benefit. Potassium chlorate is a remedy well spoken of; but the dieting, and remedies above mentioned, have proved satisfactory with me.

Spermatorrhœa.

Digitalis, ten to fifteen minims, three times a day, does good service. When erections are troublesome, the bromides of lithium, sodium or ammonium may be given, in doses of ten grains of the lithium salt, or fifteen grains of either of the others. If there is seminal weakness, the phosphorous acid, first decimal dilution, one minim three times a day, has a good effect. For severe and persistent erections, give picric acid, third decimal dilution, one minim three times a day. Staphisagria, one minim every four hours, is efficient in irritability. Gelsemium, alternated with lupulin, does great good in old cases. Belladonna suits some cases, especially if there be headache or vertigo. Bromide of camphor is also applicable in some cases. The patient's diet should be well regulated, the bowels kept open, and the cold hip-bath used.

Syphilis.

The primary chancre may be touched with nitric acid, on a soft pine stick, the ulcer then covered in iodoform, or the black wash. The patient should also take a tincture of four ounces each of the tinctures of corydalis, phytolacca, lappa minor semina, and stillingia; dose, a dessert-spoonful three times a day. When secondary sore mouth and throat appear, in addition to the above, a teaspoonful of echinacea angustifolia should be taken with each dose of the remedies mentioned above. A mouth-wash and gargle of a solution of boric acid, or potassium permanganate, should also be used ter in die. The iodide of potassium should be given in five grain doses every four or six hours. If condylomata appear, they should be touched with

strong tincture of thuja. For pains in the bones, bichromate of potassium is the remedy, or the chloride of gold; dose, one one-hundredth of a grain ter in die.

Tic Douloureux—Facial Neuralgia.

Gelsemium, in twenty minim doses, cures most of the cases. Croton-chloral, five grains every half hour, relieves the pain. Belladonna will often afford relief in doses of five minims.

Tonsillitis, Acute.

For acute tonsillitis, aconite, in doses of half a minim to one minim every two hours, has proven almost a specific with me. If this fail, I give a grain of the first decimal trituration of baryta carbonate every two hours. This is also a good remedy.

Tonsillitis, Chronic.

For the final cure of chronic enlargement of these glands, the iodides have proved very positive with me. I give Lugol's solution (the compound tincture of iodine), in doses of three to five minims, three times a day; or the syrup of hydriodic acid, in doses of thirty to sixty minims after every meal, well diluted in water. Iodine, if continued for a long time, cures this disease.

Typhoid Fever. Enteric Fever.

The treatment at the first must be antiseptic. Baptisia has proven very beneficial in many of my cases. I give five to eight minims every two hours, for the first eight or ten days. Then aconite controls the pulse, and antifebrin lessens the heat. Sulphurous acid may be given in doses of two to three minims every three hours, well diluted in cold water. Tincture of iodine is regarded as very valuable. In the latter stages, I have used a mucilage of turpentine with good effect, say one drachm of turpentine to one ounce of syrup of acacia; dose, thirty to forty minims every two hours. If the brain suffers, two to three minims of tincture of belladonna should be given.

and repeated every eight hours until the brain symptoms are relieved. If ulceration of the bowels supervene, bismuth in doses of three grains, every three hours, is the remedy parexcellence.

Typhus Fever. Brain Fever.

Baptisia should commence the treatment in this disease, three to five minims every two hours, or eight minims every four hours, for the first five or six days. Aconite, as in other fevers, should be given to control the heart. Belladonna should be given as soon as any brain symptoms are manifested, in doses of two to three minims, twice a day. If the delirium become wild, hyoscyamus is indicated, five minims every three hours. If the tongue become dry, with a brownish or black coating on it, muriatic acid, two to three minims in half a glass of sweetened water, will be of material benefit in this disease. If the fever heat be high, antifebrin will be required. The bowels may be kept open with cream of tartar, dissolved in water, and a little soda water added to cause effervescence. If the patient complain of pain in the bowels, rhus toxicodendron is the remedy, in doses of one to two minims every three hours.

Varicocele.

Hamamelis, in doses of five minims every two hours, cures this disease.

Varicosis.

Hamamelis, five minims every two hours, seldom fails to impress the veins in a few days. Elastic stockings should also be worn by the patient.

Variola.

Cimicifuga, if given early, prevents pitting. Camphor restores the eruption when it recedes from the surface. Belladonna acts as a prophylactic; and also prevents brain complications, and modifies the disease. Ammonium carbonate has

been used with good effect in this disease. If the temperature be high, aconite may be given. Chloral does well also, where the temperature is inclined to be high. Powdered carbonate of zinc is used to prevent pitting. A solution of asepsin will prevent a septic condition.

Warts.

Give thuja, one minim three times a day, and let the warts be painted with the normal tincture. If this fail, then touch them with nitric acid, and in a few days soak the warts in warm water, and they will peel out.

Whooping-Cough.

Give aconite, one minim, and tincture of ipecacuanha, one minim every hour, in alternation. As soon as the cough becomes spasmodic, drosera may be administered in doses of three to five drops, according to the age of the patient, every two hours. If this fail, then the syrup of alum in doses of one drachm, does well in some cases, after the inflammatory stage has passed off. Coccus cacti, in doses of one-fourth to half a grain every two or three hours, has proven very beneficial in many cases.

Worms-Lumbricoides.

Syrup of spigelia, with two to four grains of santonin, well pulverized, to the ounce, should be given in doses of a teaspoonful, three times a day. About the third day, the child should be purged, and if not relieved of the pests, the treatment should be repeated. For tenia, we have filix mas, brayera (koosso), rotlera (kamella), pepo and granati fructus cortex. The ascaris (a small worm in the rectum) may be quickly dislodged by an enema of fluid extract of apple tree bark, or one grain of sulphate of iron to four ounces of water injected into the rectum will destroy the worm immediately. Pelletierine is the best remedy for the tapeworm; dose, fifteen grains of the tannate.

Yellow Fever.

During the stage of chill, five minims of saturated tincture of camphor is the remedy. When this produces reaction, then give aconite in doses of one minim every hour, to control the heart. If there are gastric symptoms, give three to five minims of bryonia, every three hours. If the patient passes into a typhoid state, give tincture of arsenic; dose, one minim every three hours, in water.



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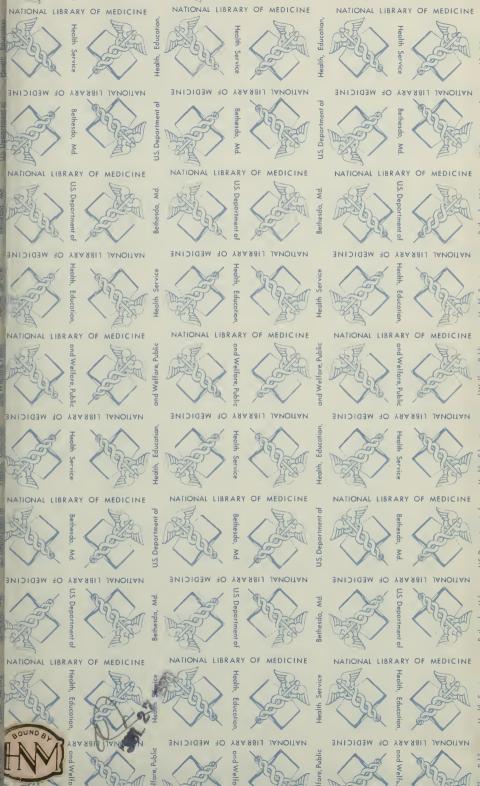
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